

DO YOU KNOW HOW TO RIDE?

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Motor Cycling

VOL. XIV

TUESDAY, 31ST OCTOBER, 1916.
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No. 364.

B.S.A.

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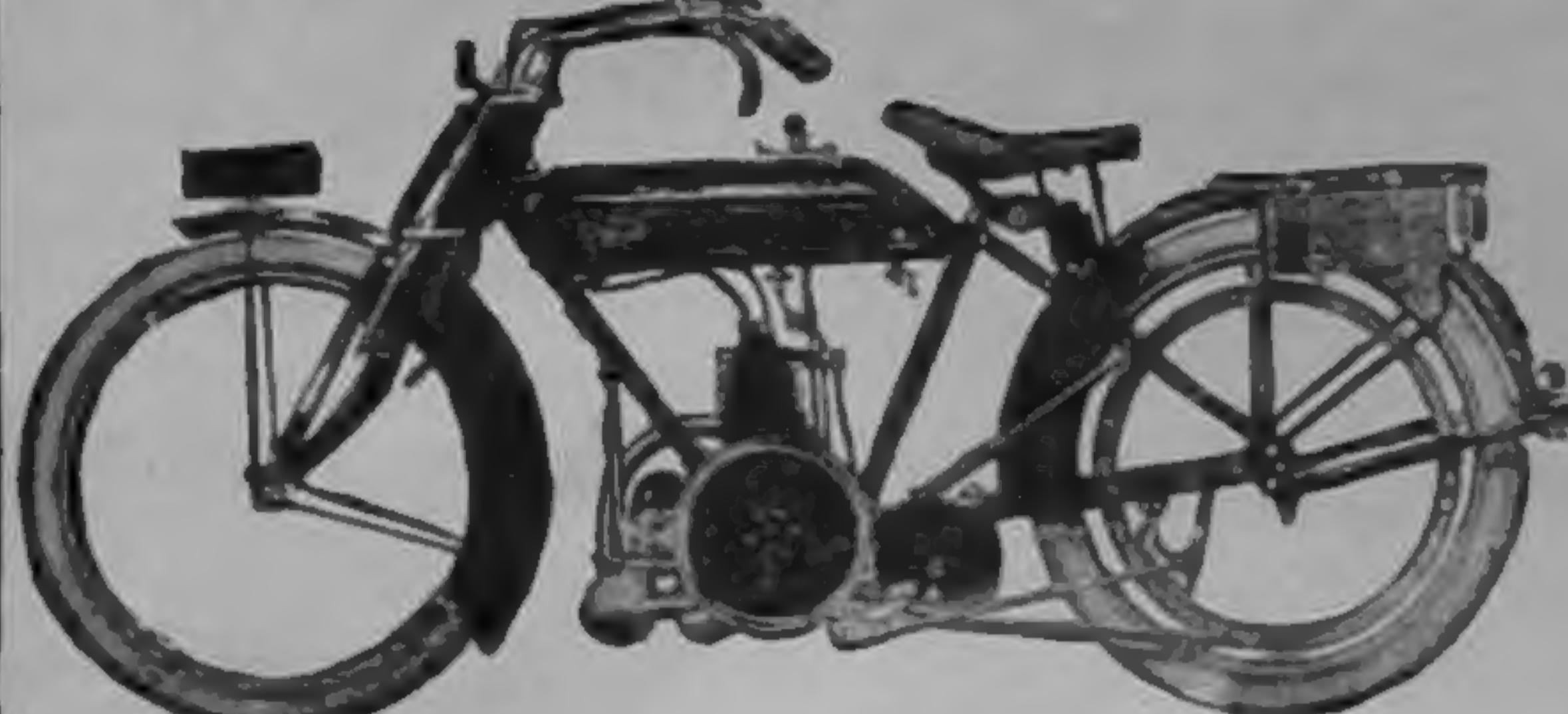
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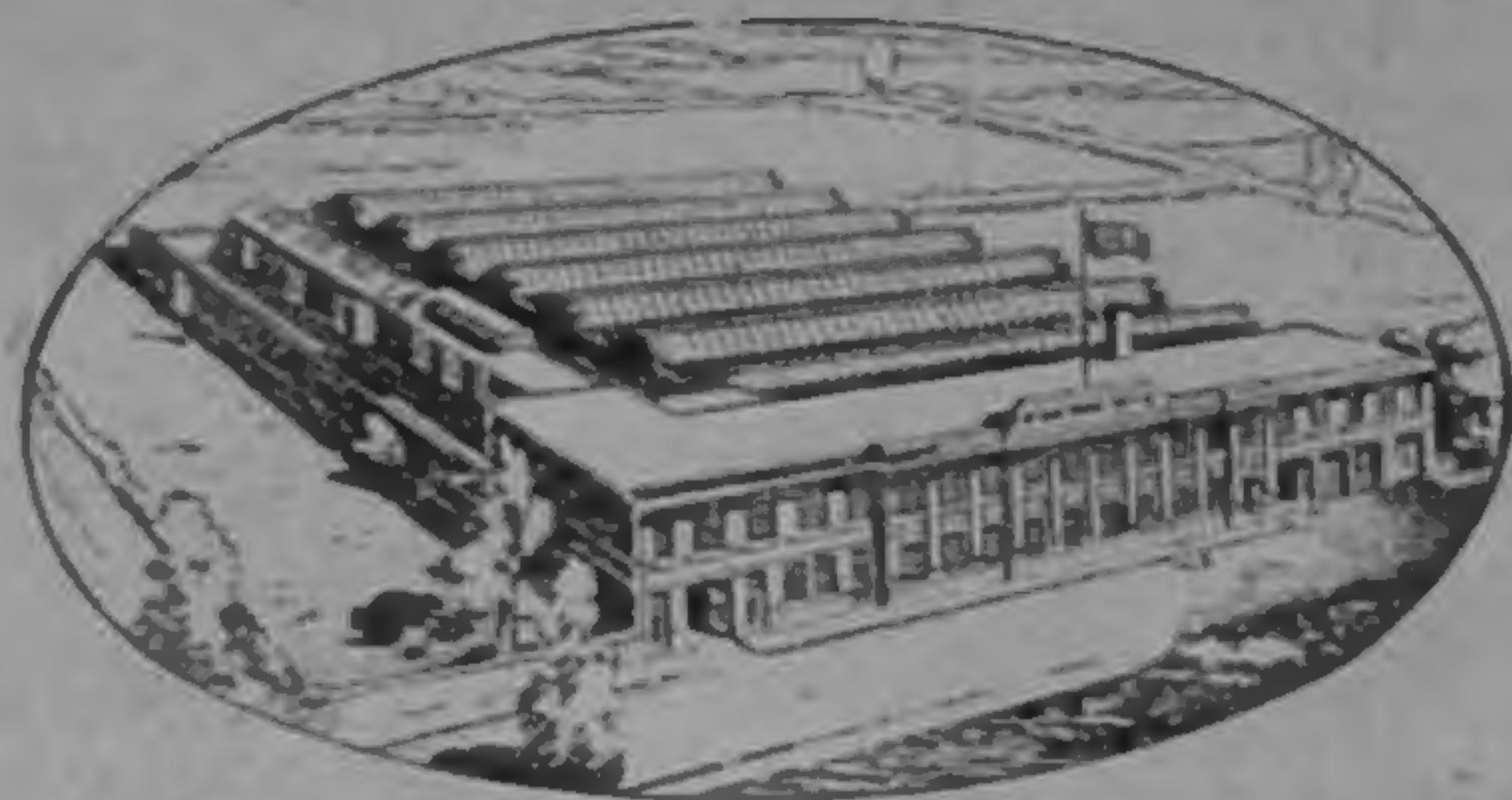
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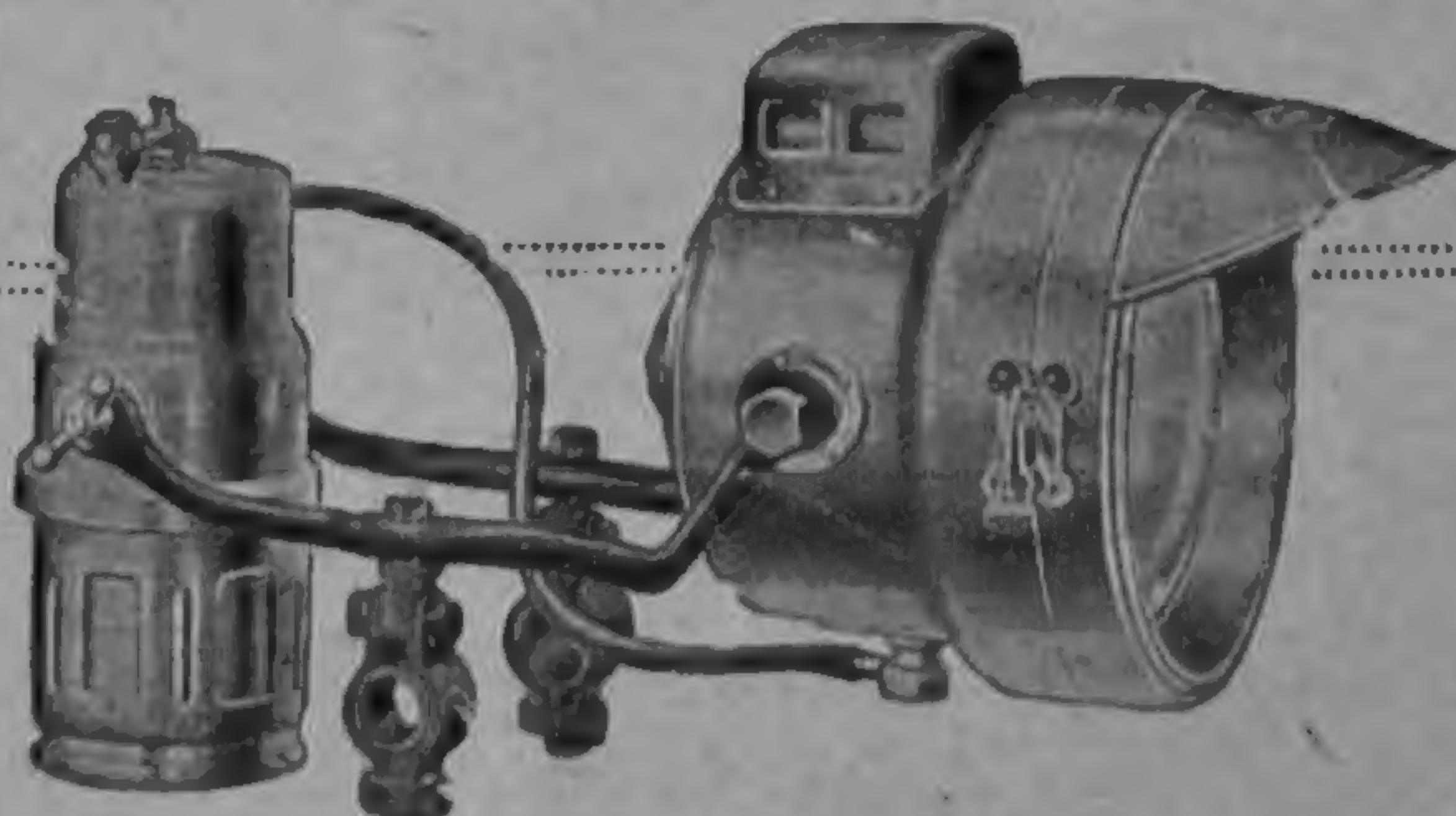


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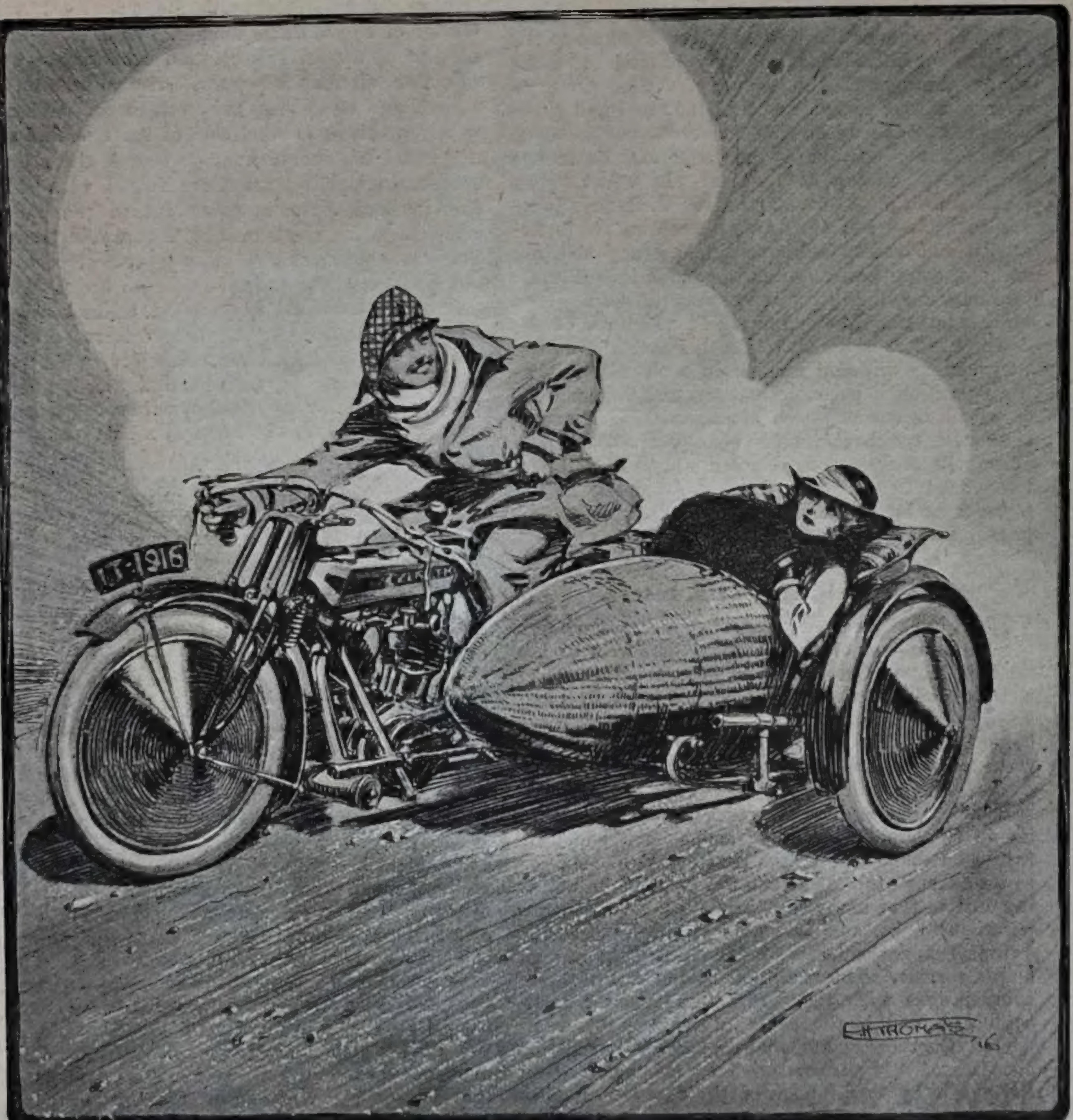
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MotorCycling

A Newspaper for Motorcyclists only

Edited, Written, and Illustrated
by
A STAFF OF
PRACTICAL
MOTORCYCLISTS.

Offices: 7-15, ROSEBURY
AVENUE, LONDON, E.C.



The Rising Generation, or Keeping the Home Petrol Burning With a Vengeance.

One of the features of the present day motoring is the number of junior "nuts" and their female prototypes that are to be observed on the road—keeping their "called-up" brothers' machines in working order!

EDITORIAL

Garages Must Close at 8 p.m.: New Home Office Order—A Suggestion to the War Office—Mechanical Non-skids.

The Early Closing Order.

NOTWITHSTANDING considerable and influential opposition in Parliament the Home Office have under the powers of the Defence of the Realm Act introduced an early closing order for shops throughout the country. The principal opposition was raised on behalf of the small shopkeeper, but the effect that the order will have on the motoring community at large will be in the compulsory closing of garages. In effect, after eight o'clock in the evening on the week-days Monday to Friday, and after nine o'clock on the Saturday, it will be impossible to purchase any fuel, oil, carbide, spare parts, etc., throughout the country. The motorist, therefore, and especially the business man, who, notwithstanding the restrictions of the lighting order, is forced to use his machine during the evening will find himself in a singularly awkward position if by some inadvertence he runs out of petrol or encounters a breakdown which necessitates the purchase of some spare part. Such purchase will, of course, be impossible, and he will therefore have to wait until the garage opens in the morning or have to awaken an obliging garage proprietor at daybreak.

Sidecar Fitting in France.

WE have received a strong recommendation from one of the previous members of the staff of MOTOR CYCLING, who is now in charge of a large convoy of cars, lorries, motorcycles, and sidecars in France, to urge the necessity of sidecars being fitted to the right-hand side of machines when these combinations are sent out to the Front. Of course, as our readers are aware, the rule of the road in France is directly contrary to that pertaining in England. Instead of traffic having to keep to the left-hand side of the road the right side has to be adhered to. It is pointed out by the officer in question that many combinations in use are comparatively light, and he instances the hundreds of 4 h.p. Douglas sidecar combinations that are on active service. The result of driving one of these combinations with the sidecar empty on a well-cambered road is the cause of innumerable accidents. On those sections where there only remains a comparatively narrow strip of pavé, bounded on either side by deep mud ruts, the danger is further accentuated, for a skid may very easily drive the machine into the morass at the side of the road; the sidecar is tilted even further in the air, and consequently it is practically impossible to keep the sidecar wheel on the road. Again, when overtaking and passing traffic it is necessary, before the driver can see whether the road is clear, to drive to

the extreme left-hand side. When this traffic is being passed in the opposite direction by a fast-moving vehicle, driving to the extreme left is a matter of considerable danger. With cars, the alteration of the driver's position would cause a considerable amount of works disorganization, but with regard to sidecars they can as easily be made to fit on the right-hand side of the machine as on the left. We should imagine that if the principal concerns supplying the Government with sidecar combinations were to point out to the military authorities the great benefit that would accrue if they were permitted to supply their sidecar combinations with the sidecar fitted on the right-hand side of the machine they would be conferring an enormous benefit upon the drivers of those machines in France. We, ourselves, are bringing the matter before a prominent authority at the War Office, but, naturally enough, action taken in several quarters is of more benefit than individual effort.

Preventing Skidding.

LAST year we made a strong effort also to induce the authorities to provide despatch riders' machines with some form of mechanical anti-skidding device. Elsewhere in this issue will be found an article dealing with the conditions under which despatch riders have to carry their messages, and there is no doubt that an enormous amount of time is wasted by men being unable properly to negotiate the atrocious roads now that winter conditions have once more commenced. Some few years ago there was a miniature boom in mechanical anti-skidding devices, and we fully expect that if the question were tackled in a practical manner it would be possible to evolve a method whereby a solo motorcycle could be rendered far more stable than it is at the present time. One concern, we believe, submitted to the War Office an arrangement on the lines of a skeleton sidecar. The drawback, of course, to this arrangement is that owing to its extreme lightness it rendered the machine somewhat dangerous to drive. The provision, however, of two auxiliary wheels on the lines of the old Jack-No-Skid, with the wheels held in contact with the ground by means of springs, would, we feel sure, tend to solve the difficulty. We expect that at first many despatch riders would not take very kindly to what they might term the grandmotherly device, but when the benefits became more apparent we fully expect that it would be welcomed. The feeling of confidence that would be given by the provision of some non-skid arrangement would also go far to render it more effective.



A Diary of the Open Road.

I DO not know whether any of my readers have bumped against the same tube trouble that I have been experiencing lately, but verily I hope you have all been more fortunate, and that mine was an exceptional experience. Not that I deserved all this;

A far from it, in fact, for I am not one of those who possess a kind of mania for Troublesome trying this or that brand of tyre or Valve Seat. tube. I have religiously adhered to a well-proven factory's particular production when purchasing anything in the tyre line, for if there is one thing that I do really abhor in the way of wayside repair work, it is tyre mending. Nevertheless, the precaution I have exerted in my purchasing methods proved of little avail during the past three weeks. On four occasions my back tyre has cried "enough," and has compelled me to make an involuntary stop.

The ordinary tyre trouble, a straightforward, honest puncture, is just one of those little things that are at times sent to try us. With this in mind, one sallies forth prepared and armed with modern Holdite patches, and very little difficulty is encountered in accomplishing a sound, successful repair. My troubles lately cannot rank in this highly respectable

class, but were of those illusive leakages that comfort you to the extent of permitting an easy cover removal, immediate inflation, and then deliberately defy you to trace the air's means of escape. I have pumped the unprotected tube so hard that a weak spot which has bulged like a big balloon has bade me beware, and compelled me to make hasty resort to the valve collar nut to release some of the pressure. But, despite all this, I was baffled. On another occasion I relaced the tube and cover on the rim twice, but each time I attempted to inflate the tyre to a normal riding pressure the air would commence to sizzle out at a much greater speed than I could pump it in. As the tube was absolutely patchless, so far as my examination revealed, and the joint was faultless, it is simply a matter of admitting the truth to say I was euchred. The fitting of a new tube was immediately recognized as the first and best loss, and the most expeditious means of continuing my journey. This I did uncomplainingly, and carefully stowed away the first tube for future attention, but when, before another week had passed, the second tube revealed the same characteristics, I was compelled by the very limited length of my pocket to stare the subject straight in the face. One could not go on purchasing new tubes indefinitely, so, wayside or no wayside, the job had to be mastered. However,

for two whole hours this thing defied my most systematic search, which might have continued until this hour had not mere chance revealed the presence of the erring spot. I had replaced the cover for the third and, inwardly vowed, last time, as I had decided to ride home on the rim. My endurance at the pump handle was just about exhausted when I raised my back for a breather. In doing so I somehow strained the valve of the only half-inflated tube sideways, when the hitherto silent tube started off sizzling. Dropping the pump, still connected to the valve, in absolute disgust, I was puzzled to find that the sizzling ceased. Again picking up the pump and applying the side strain, the sizzling was immediately repeated.

At last, then, I fathomed the fiend: it was a faulty valve seating—an assumption that further examination proved correct. A repair was eventually effected by solutioning a canvas tag over the top of the usual one of rubber, which, of course, prevented the tube from expanding at this particular point. What I should now like to know is the reason for the design of valve fitted to this brand of tube, as it appears to me the responsible party knows very little of valves or valve duties. It needs but a casual glance at my

first sketch, which is slightly exaggerated for illustrative purposes, to see that the more the valve lock nut is screwed down, the less secure becomes the seating. In fact, one could almost draw the valve completely away from the tube by exerting undue pressure on the nut, simply because this action presses the tube between two faces, which, tapering away from the valve body, force the tube also away from the body, resulting in very insecure seating. By using a slightly cupped or concave foot to the valve body, and by fitting a slightly convex check washer before the check nut, it is possible to obtain an almost perfect joint, and the tighter the check nut the more secure the joint, as the second sketch will show.

Here, then, Mr. Designer, at whose head I have hurled many uncomplimentary remarks, is a valve design that you may have gratis, and for which no royalty is required; but please in future do not let me lose faith in your excellent rubber productions over a mere shoddy valve.

COORE.

In view of the necessity of economizing paper, imposed upon us by the Government, readers are asked not to buy "Motor Cycling" casually here and there, but to place an order for it to be delivered or reserved regularly by some selected newsagent.

IN GERMAN EAST—

An Account of the Hardships that have to be Endured in the African Campaign—The Only Fighting Motorcycle Unit in Existence.



With a load typical of what has to be carried in Africa—miles away from a base and repair shops.

THE following interesting account has been forwarded to the Birmingham Small Arms Co. Ltd., from an officer in charge of some 400 motorcyclists who are used as a fighting unit in German East Africa. The men are supplied with 4½ h.p. B.S.A.s, which have rendered really excellent service:—

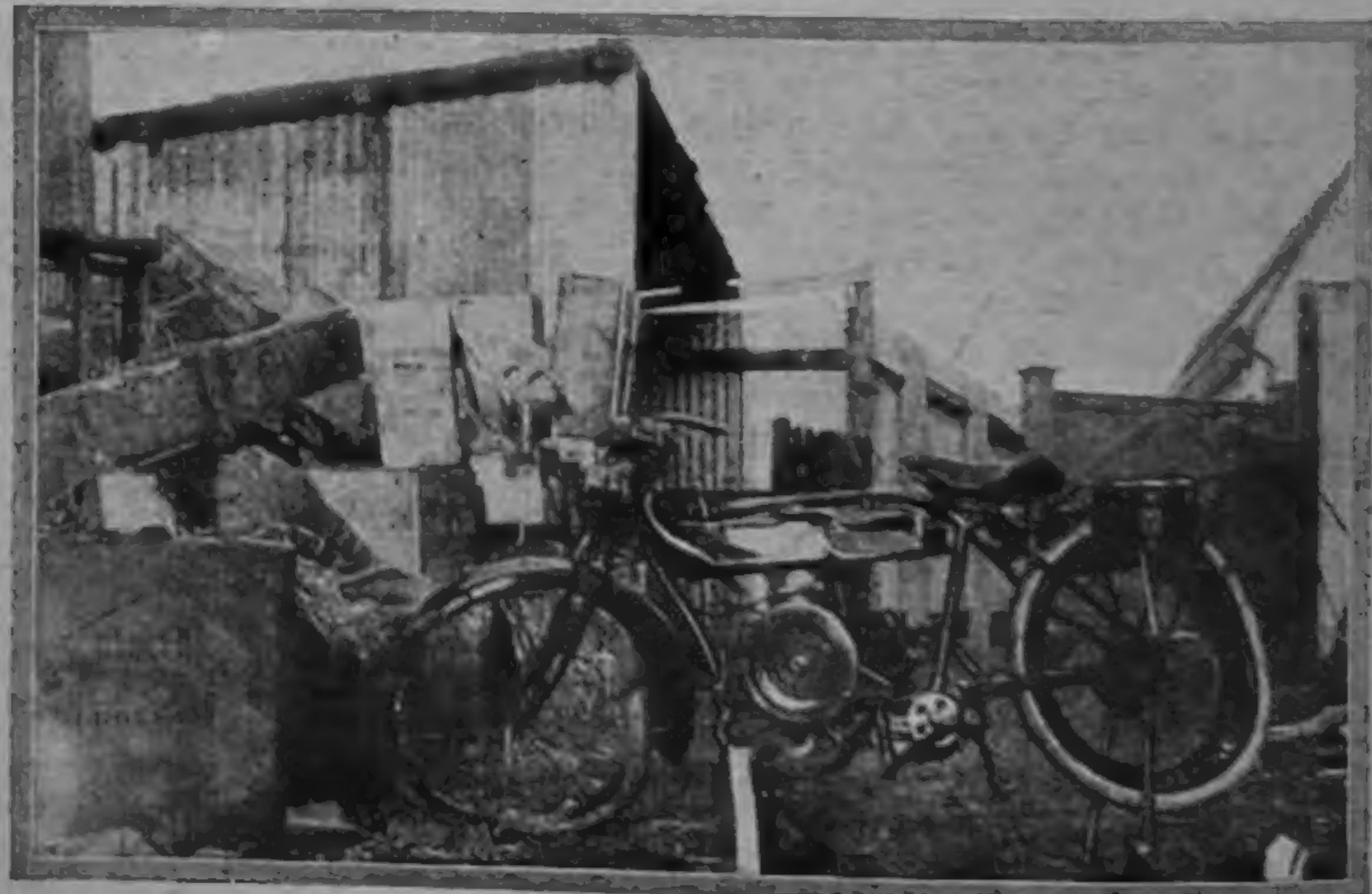
" . . . We left Voi (junction of the new line being built to German East) on the 10th of May. Up to 10 miles from Voi the ground rises slightly, and the road is straight and very good. My platoon was the advance guard, so I was able to look back; it was a grand sight to see the 400 B.S.A.s thundering along with their exhausts open. When the corps is on the move it covers seven miles of road, and the engines make a noise just like the breakers on the seashore. We made 50 miles the first day, which was very good when you take into consideration the numerous stops which were made to enable the men to adjust their kits and tighten and adjust their machines. I might mention incidentally that our kit takes some fastening on, as we carry everything on the cycle. There is about 140 lb. of kit and equipment, viz., blankets, change of clothing, spare boots, three days rations, 300 rounds of ammunition, dynamite, cooking utensils, rifle, bayonet, Sou'-wester suits (oil-skins), overcoat, Semaphore flags, and a hundred and one other articles too numerous to mention. We carry the rifles in German gun buckets (captured in G.S.W.A.) strapped to the front forks. I must say this helps to steady the machine wonderfully in the sand, as, owing to the enormous weight at the back, the machine is inclined to wobble when you strike the sand. We have three R.E.O. lorries, which are used exclusively for carrying oil and petrol. I can assure you we use some petrol, too.

AG

" We slept the first night on the Himo River; it was quite picturesque seeing the countless small fires, with each man cooking his dixie of coffee. We started off again just as dawn was breaking. The wonderful Kilima Njaro mountain, with its snow-capped top was in sight away up above the clouds. The road from here was very bad; in fact, I am justified in saying that no motorcycle has been ridden for any distance on similar roads before. We travelled all day round the shops of Kilima Njaro, encountering a rapid mountain stream at every couple of miles. As the bridges had all been washed away and the water was too deep to push the machines through we

had to carry everyone over. I can assure you this was a stupendous bit of work. The men all stripped. Wading through this ice cold water it took four men to carry each machine. This, of course, delayed us considerably, and we were only able to do 20 miles, but you can just imagine how we enjoyed the trek—the temperature was 120 in the shade—and encountering these rivers with their ice cold water every couple of miles.

" The tropical vegetation and scenery were just simply perfect. There were large quantities of tropical fruits available through the whole route. We slept on the banks of one of the numerous rivers, and struck camp again just as the sun was peeping over the horizon. We struggled along manfully all day over the worst roads it has been my misfortune to see; darkness overtook us before we reached our destination, i.e., New Mosche, which it was essential



"Dis," with a capital D—or what happens when a machine gets in the way of a German "77."

In German East (contd.).

for us to reach that night. The roads were bad in daylight (never once getting beyond first gear), but, good heavens, riding the same roads at night with all the men knocked up was simply appalling. It can be imagined the work the officers had in keeping the men going; as one man was started off six more would be dismounted. Of course, if one man fell off it would cause the remainder of his platoon to dismount, as there was not sufficient room to pass one another. I'll bet Billingsgate never heard the language that I heard that night. However, we pitched up at New Mosehe (well in the enemies country) at about 11 p.m. dead beat. We just simply unstrapped our blankets and slept at the side of the cycle. The next day the O.C. told us we could devote to overhauling the machines, and I can assure you we needed it, too, 75 per cent. of the footboards had gone, and nearly every handlebar required to be straightened; with the exception of minor repairs, such as replacing nuts, straightening forks, etc., there was no material damage. Not a single machine that could not have taken the road at once.

"The next day we started off, minus six men who had sprained their ankles, for Kondo Irangi, the seat of operations. From here on we had heavy belts of sand to negotiate, so deep and soft that one's footboards were dragging in the sand that had been made by those in front of you, and when one poor unfortunate stuck, you can just imagine the language that was thrown at him by those in the rear, as it was impossible to turn out and pass him. Everyone had to declutch, and I can assure you it took expert manipulation to get the cycle going again in the heavy sand. However, everything comes to an end, even a road in German East, and on the third day we pitched up at Kondo Irangi. It was about 11 o'clock a.m. as we rode down the slight incline into K.I. The Huns gave us our first baptism of fire; they put about 20 shells into us from a long-range gun (brought from the 'Koenigsburg'), but as we were riding at 100 yards distance between each cycle, nobody was hit.

"At Kondo we took up a portion of the defence known as 'Observation Kop,' and sweated here for six long weary weeks, enduring terrible hardships. Rations consisted of $\frac{1}{2}$ lb. of flour, coffee 1 oz., $1\frac{1}{2}$ ozs.

of sugar, and $\frac{1}{2}$ lb. of meat, and it was not possible to purchase anything. We were in a perpetual state of hunger. When our large guns got down we were able to retaliate a bit. It was fine fun being able to watch our shells bursting over their positions and giving them a bit of what we had had to endure for six weeks. After a few days the enemy withdrew from South Hill. The motorcyclists were fortunate in being selected to push the rearguard company of Askaris (native German troops) off the remaining hills, and then everyone was on the move again. We are now attached to and work in conjunction with the armoured motor machine guns, and we are a fine combination, too, I can assure you. We pushed the enemy from position to position till we arrived at Dodoma. This is on the railway line. The Huns will make one more stand about 100 miles east of this, then this long, arduous campaign will be finished, with one more colony added to the glorious flag.

"Up to the present, after 2800 miles with the cycles very much overloaded, and used over the worst roads in the world, there is not one machine that cannot take the road at once, despite the fact that we have no workshop and can only carry a very limited amount of spares. Only one gearbox has been taken down, and this was owing to the rider having forgotten to fill it up with oil, consequently it seized. The footboards have nearly all been torn away, and 50 per cent. of the carriers have broken owing to the excessive weight loaded on to them.

"The natives have a suspicious dread of the cycles. They call us the young rhinoceros, which is the most ferocious animal here. One of the Ugogo chiefs asked me if the noise the engine made was because it was angry at having to go at such a speed. They cannot realize any vehicle not having a span of oxen to move it along. I think this is the only motorcycle corps that is being used as a fighting unit in the British Army. We are all very anxious to be taken to Flanders just as we are—same motorcycles and men.

"We have found the Dunlop tyres excellent for this rough work, as they appear to be harder and are able to resist the action of the sand, and the thorns break off before they penetrate sufficiently deep to puncture the tube. Both my covers are simply covered with broken-off pieces of thorn."

INCREASED COST OF PRINTING.

Interesting Announcement by the Master Printers and Allied Trades' Association.

The Master Printers Association have issued the following notice regarding the increases in the cost of printing, a matter, of course, that hits all newspaper publishers particularly severely:—

"Master printers throughout the country have recognized the need for increased wages to their staffs to compensate for the increased cost of living, and have in many districts accorded further increases in wages or allowances for the duration of the war and some period afterwards, and are now face to face with an enormous advance in the cost of printing. It is estimated that the annual wage bill of the printing trade in London alone, exclusive of the daily newspapers, has been increased by the advances by no less than £250,000 per annum, and the amount for the whole country must be considerable. The Special Costing Committee of the Federation of Master Printers of the United Kingdom of Great Britain and Ireland that deals with such questions has considered the effect of these and other increases in the cost of

printing, and it is found that since the outbreak of war the costs involved in printing (taking into consideration the latest figures available) have increased at least 25 per cent. This calculation of 25 per cent. does not include any provision for the extra cost of paper and other materials used in the printing trade, which extra cost reaches in some cases as high as 200 per cent."

Campaign Against "Cut-outs."

Attention was drawn by the Chairman of the Kingston County Bench recently to the nuisance caused by motorcyclists using "cut-outs" on their machines when riding on the Portsmouth road. It was urged that representations should be made concerning the matter to the Commissioner of Police. It should be remembered, however, that a motorcyclist cannot be summoned merely because his machine is fitted with a cut-out, but he *can* be summoned for driving an unduly noisy machine.

FROM OUR ARTIST IN THE SOMME SECTOR.



Incidents in the Big Push—Tanks omitted!

The Manufacture of a Motorcycle Power Unit.

[NINTH SERIES.]

How J.A.P. Exhaust Valve Caps with Radiating Fins are Made.

THIS week we deal with one of the simpler operations of manufacture, although it is none the less interesting. Valve caps are, of course, made from cast-iron, although at one time yellow metal was occasionally employed. The cast-iron is run into a suitable mould, the casting emerging as a rough plug metal with, in this case, the vanes which are cast on J.A.P. exhaust valve caps projecting from it.

It is now necessary to machine and thread the cap. The first operation is shown in illustration No. 1.

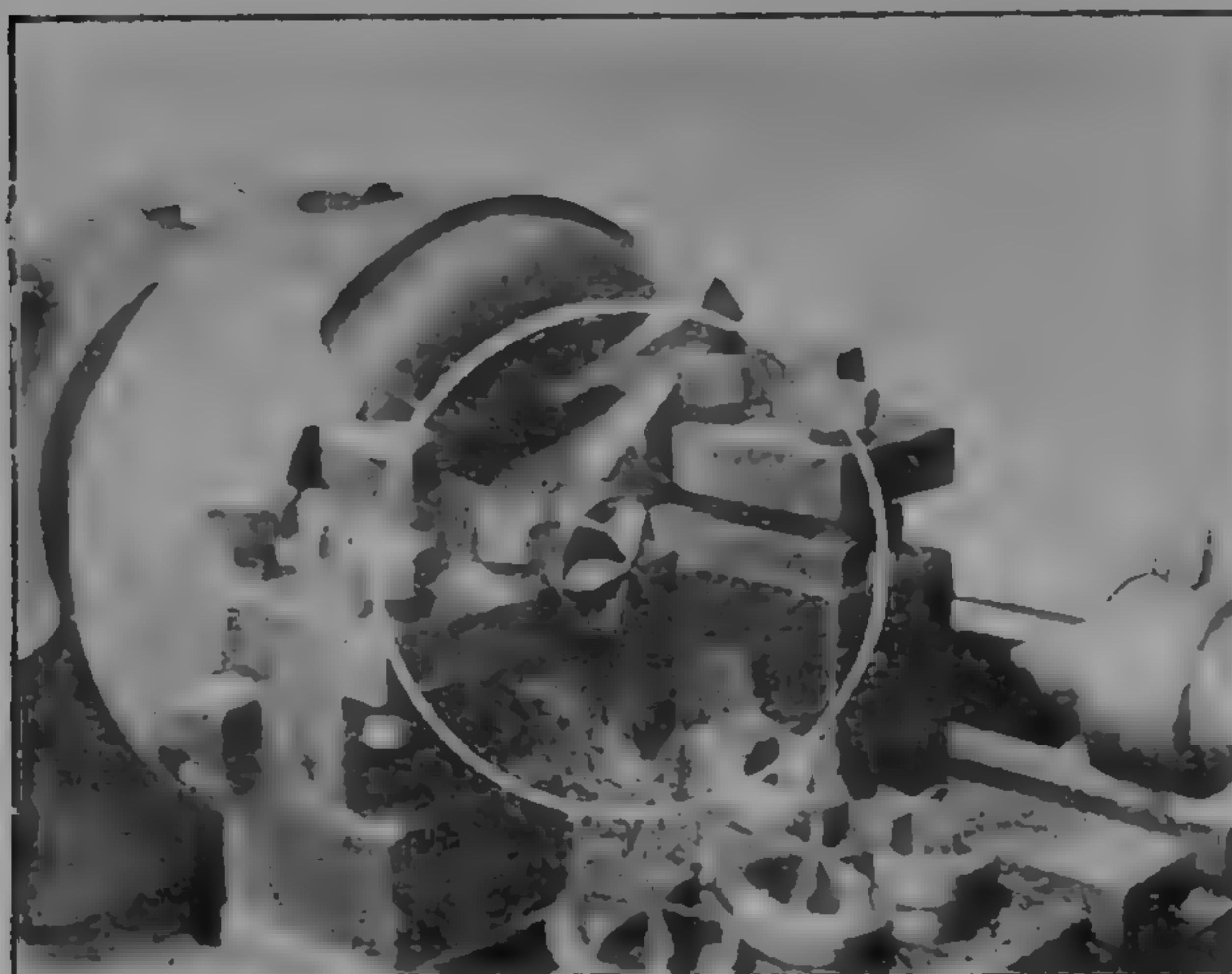


Illustration No. 1.—Turning the outer edge of the cap to diameter.

The rough cap is grasped in a lathe when the outer edge is turned to diameter. After this operation it is transferred to another lathe, gripped in a chuck by the edge that has just been turned, and the lower part of the body reduced to diameter ready for cutting the thread, whilst the base is faced up by the tool shown on the right of illustration No. 2.

A die carried in the head of a turret lathe now comes forward and cuts the thread, following which

the tool on the left turns the seating at the top of the thread. It is very necessary that this seating should be perfectly square with the thread in order to ensure an explosion-tight joint.

Milling the hexagon on the head for screwing up and removal purposes is carried out by a double-headed miller, shown in illustration No. 3. In this the cap will be observed screwed into a jig fixed in a slide under the cutter. The jig travels forward, the valve cap comes into contact with the cutters, and the two opposite flats of the hexagon head are

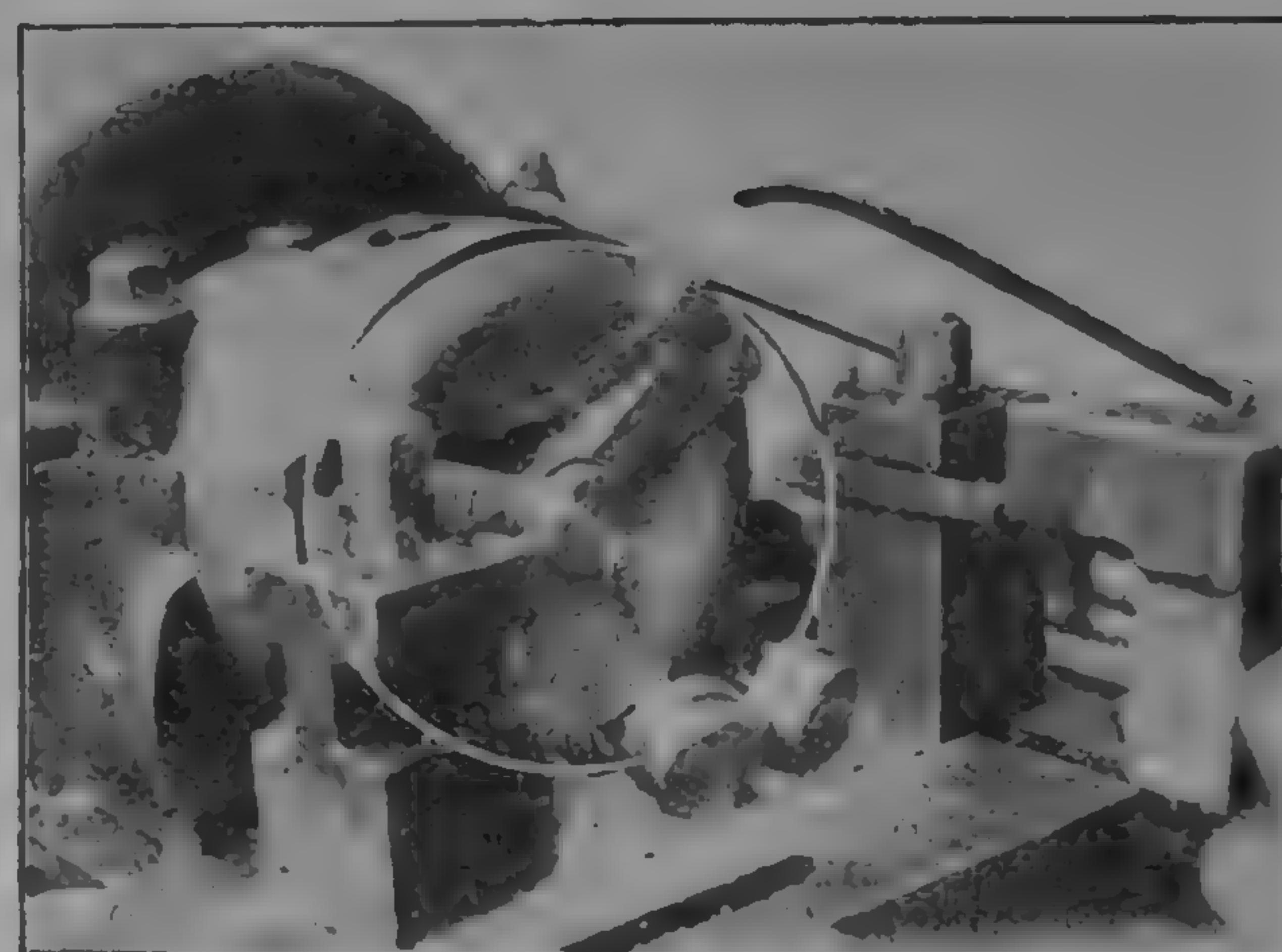


Illustration No. 2.—The lower part of the body being turned to diameter and the bottom trued up.

formed. The slide returns and automatically turns through 120 degrees, the previous operation being repeated, two more faces thus being cut. This is repeated a third time and the complete hexagon is thus produced.

The final operation consists of nickel-plating the valve cap, and in order to receive the nickel it is polished (illustration 4), passing afterwards through several chemical cleaning processes prior to immersion

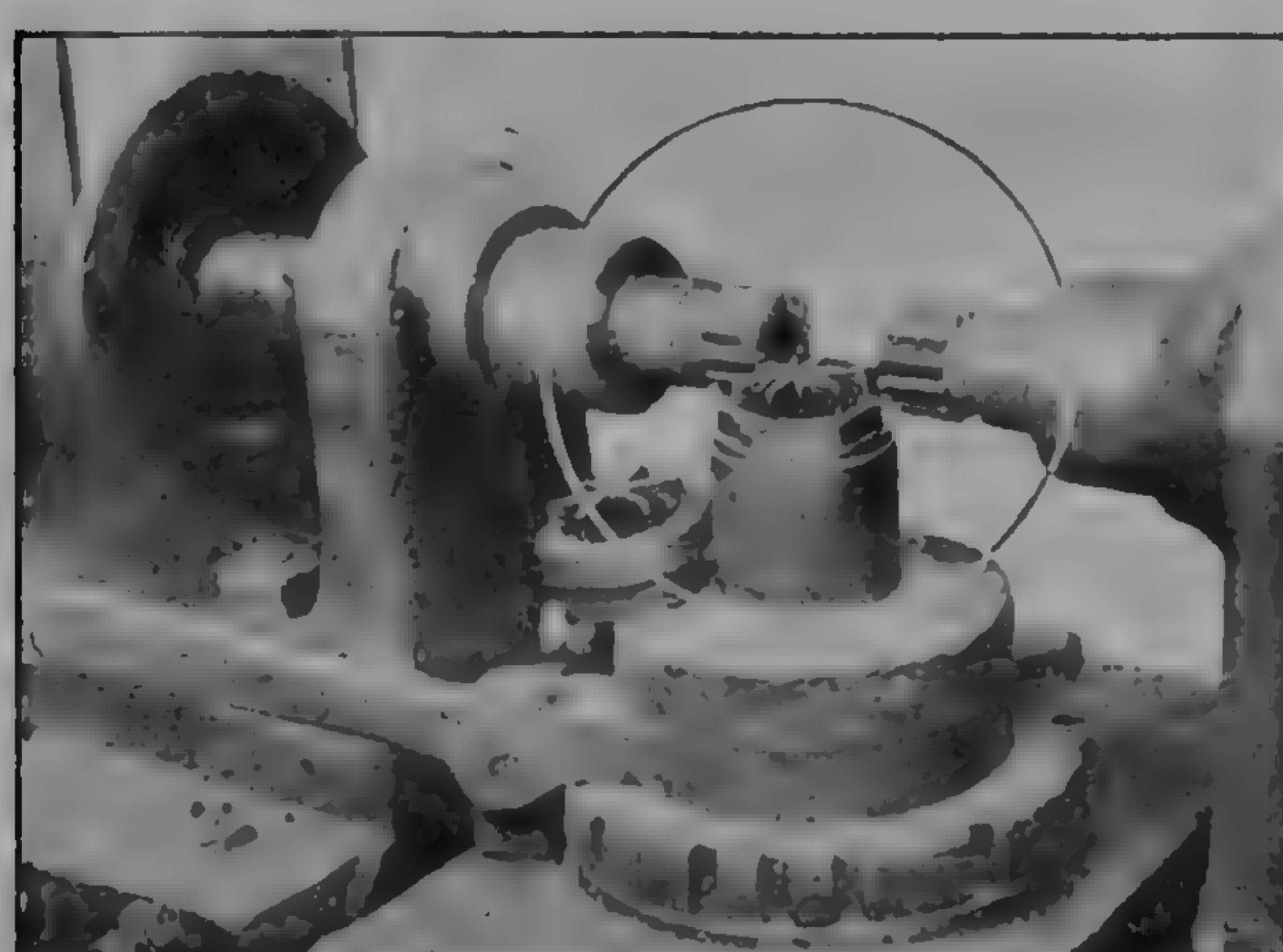


Illustration No. 3.—Milling the hexagon, a seemingly intricate but really simple process.



Illustration No. 4.—Placing the caps in a nickel-plating bath.

The Manufacture of a Motorcycle Power Unit (contd.).

in the plating bath (illustration 5). The caps are allowed to remain in the bath for a sufficient time to give a good coating of nickel, and are finally washed and dried and then polished in a similar manner to that shown in illustration 4.

The Last Process.

The concluding stage consists of the caps passing through a view room for a final examination, and when certified correct they are stamped J.A.P. and transferred to the stores.

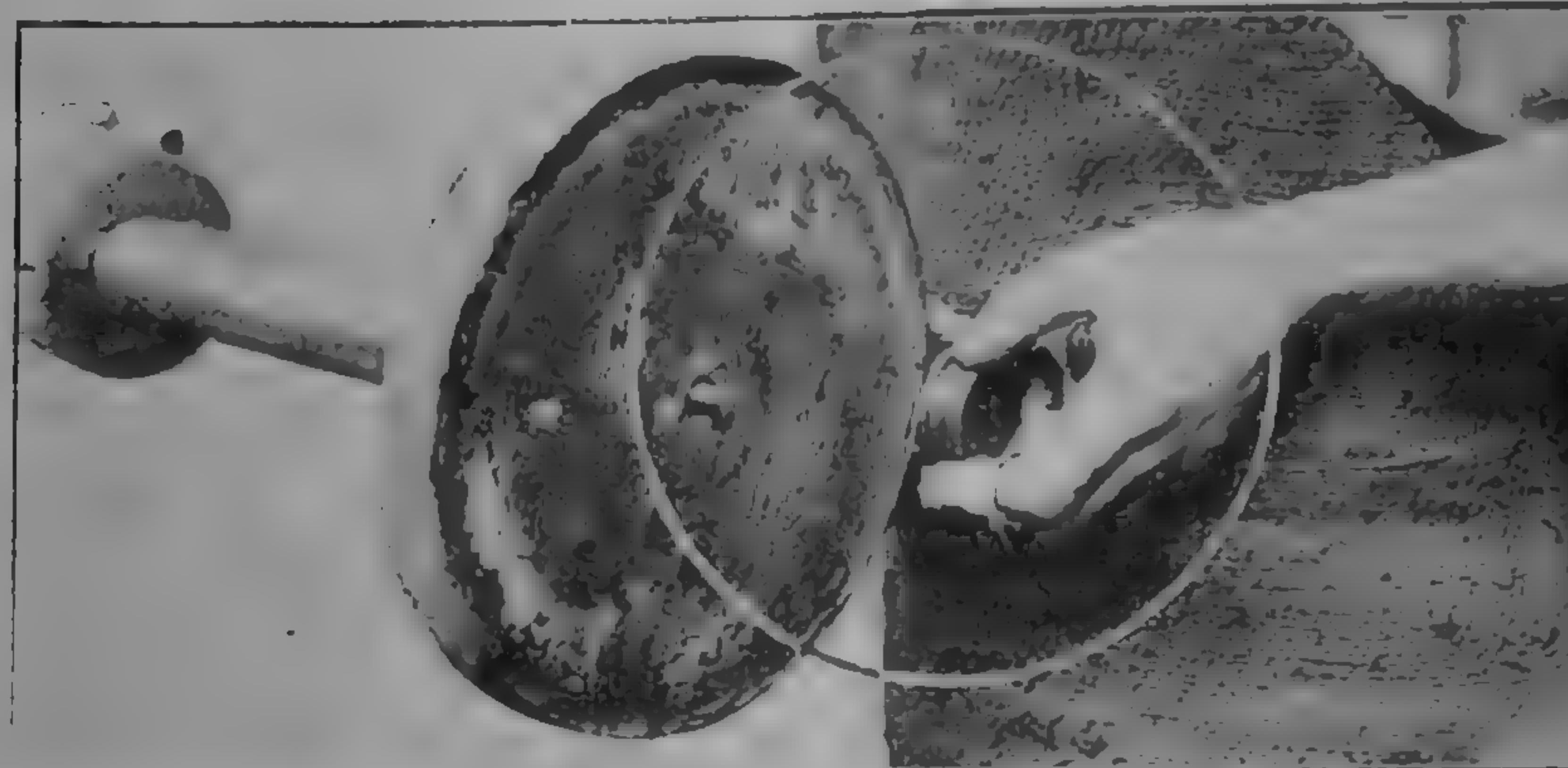


Illustration No. 4.—Polishing the cap previous to nickel-plating.

Motoring for the Maimed.

The problem of motoring for a soldier who has lost the use of both legs has been solved by a reader of "The Light Car and Cyclecar." In yesterday's issue of that journal appears an illustrated description of the alterations to an A.C. Sociable which has been converted to entire hand control in a very simple manner.

It will be remembered that some few months ago MOTOR CYCLING first drew attention to this important subject, which is now having the official consideration of the Army authorities.

THE "WHAT IS IT?" COMPETITION.

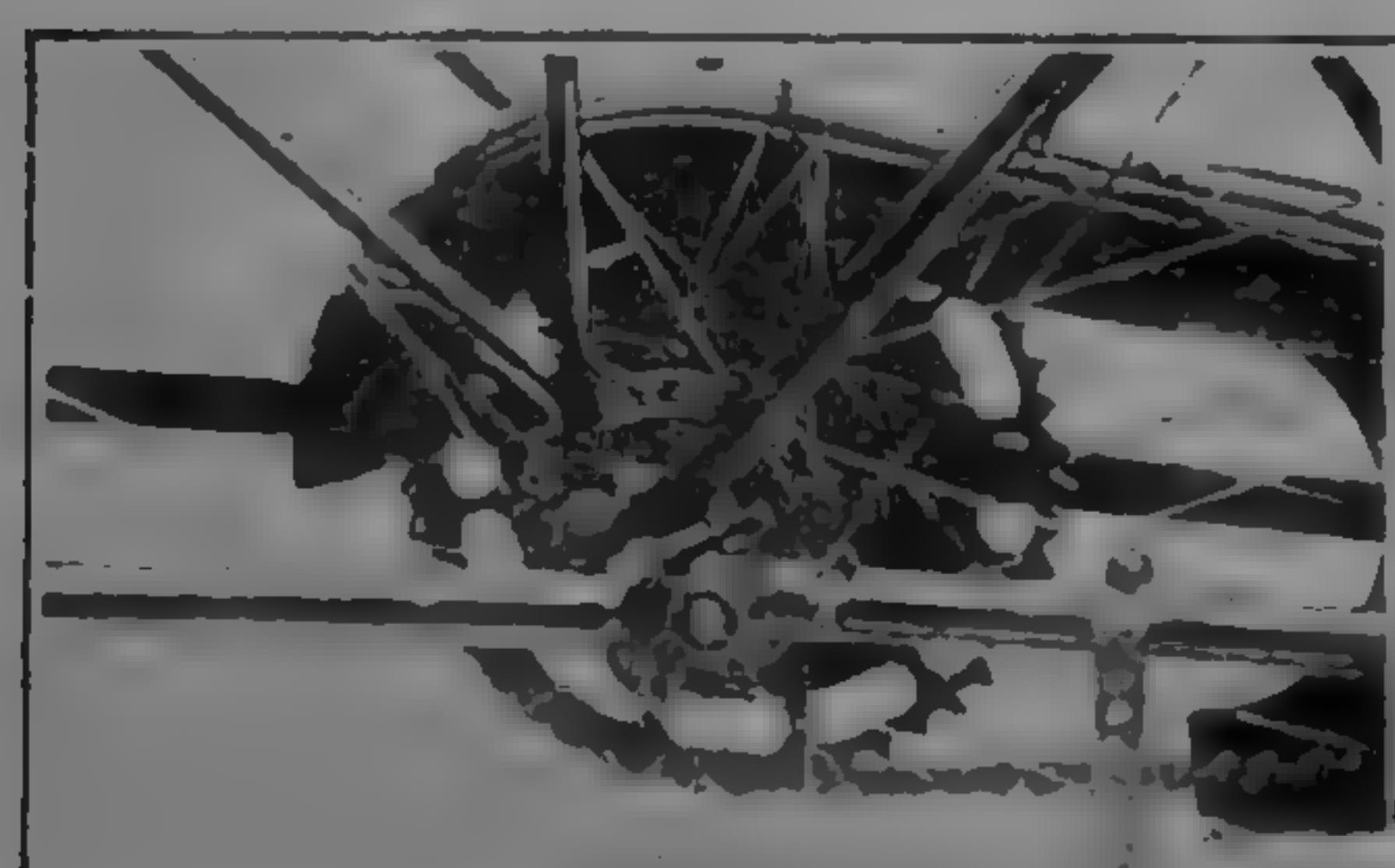
Competitors Now Number 1213. Several Questions Cleared up—Entries from Land's End to Timbuctoo.

NOTWITHSTANDING our requests for readers to pay extremely careful attention to the rules, we are still receiving postcards incorrectly filled in. The limit of absurdity, however, consists of a postcard correctly addressed and marked "Competition," but with no writing whatsoever on the back. Again, several postcards are being received without the date of issue marked upon them. In order to render compilation as easy as possible, it is very necessary that the date of the issue of which the solutions are given should be clearly marked on the top of the card. Although the illustrations are increasingly difficult to identify, a large number of readers are proving suc-

It will be remembered that the Dunlop Rubber Co. have generously offered a complete set of covers and tubes up to 2½ in. section to the second prize-winner.

In order to prevent confusion we again reprint the extremely simple rules:—

1. In all 39 illustrations of parts of not necessarily different machines will appear.
2. On a postcard addressed to the Editor, MOTOR CYCLING, 7-15, Rosebery Avenue, London, E.C., with "Competition" written in the top left-hand corner, each reader will give what he considers to be the make of machine of which the illustrations represent a part. One mark for each correct solution. 39 marks maximum.



13—? ? ? ? ?



14—? ? ? ? ?



15—? ? ? ? ?

cessful in obtaining the maximum number of marks. It will be necessary therefore for us to render the task of solution even more difficult. One reader queries whether we shall illustrate parts of American and machines not now being made, and our answer to this question is that the parts of the machines illustrated will be taken from motorcycles which are normally upon the English market. In other words, although a well-known British machine may not be obtainable, owing to the fact that the makers are engaged on war work, this will not prevent us illustrating a part of that machine. If American parts are illustrated, they will be of machines very familiar to English motorcyclists.

A10

3. The first prize will be a complete set of covers and tubes of any make or size purchasable from a tyre advertiser in MOTOR CYCLING.

4.—Other prizes commensurate in value will also be awarded.

5. At the conclusion of the competition, in the event of a tie, the names of those who have tied will be published and further illustrations will appear, and those readers will continue the competition, the illustrations being made more difficult until the prize-winners are found.

In conclusion we think it hardly necessary for us to point out that the Editor's decision is final and cannot be appealed against; also that we cannot be responsible for postcards that may go astray in the post.



Because: They are British-made

IT is against the National interest to purchase imported Tyres in War time. All the money is needed in the Country.

Wood-Milne Tyres are not to be beaten for Price or Quality. The Winter is coming on, and you want a really reliable Non-skid. We have it.

Wood-Milnes give better service, and cost less per mile, and are made in sizes suitable for every type of machine.

Let us send you our illustrated Booklet. It tells you all about them.

Wood-Milne MOTORCYCLE TYRES.

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You can always depend upon
"THE ONLY TYRES"
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The famous INTERLOCKED
CASING makes for strength
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consistent string of successes in
the classic A.C.U. TRIALS
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ANCES are indisputable
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THE KEMPSHALL TYRE CO.
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97-98, Long Acre, W.C. Cambridge Street Rubber
Works, Manchester. Also at 20, Deansgate, Manchester.
Telephone—211 Gerrard (2 lines).
Telegrams—"Studless, London."

Coventry—G. R. Bromley, Warwick Chambers, Warwick Row.
Birmingham—Reg. G. Priest, 71, Lionel St. New Zealand—
Goldingham & Bissett, Ltd., Palmerston, N. Scotland—
P. E. Pola, 27, Jamieson St., Glasgow.

C.D.C.



DESPATCH RIDING AS IT REALLY IS.

Written by a D.R. who
Constantly Sighs for
the Excitements of '14
Again.

"NEXT D.R.!"

Sorrowfully I lay aside for the third time a letter I have been endeavouring to finish for several days. My turn for a run again.

"What's it doing, George?" ("It" is the weather.) George's reply is unprintable. There are two kinds of weather out here. Wet and dry. If it's wet—well, everyone knows what motor cycling in rain is like. And if it's dry it's also dusty. What D.R. will ever forget trying to pass a convoy of lorries! The column seems never-ending, and as each lorry is passed one heaves a sigh of relief that nothing appeared through the blinding dust "head on."

"You're for Beauconville," the sergeant informs me. At least it sounds like that. The trouble is no two people pronounce any French village alike. I have been directed 20 miles out of my way in the wrong direction owing to faulty pronunciation before now.

I pocket the despatch, as it is not bulky, and leave my "school satchel" behind. No, we do not hide our despatches now for fear of running into the enemy. The good old days of never quite knowing where you were going to, who you were looking for, and whether the troops in the distance were friends or foes are over. Now I am a messenger boy, with definite runs, and definite times to keep.

"Boo Koo," as we call it, is 10 or 11 miles away. Even after two years of it we still think in miles. It makes the distance seem shorter. When someone tells us it is 16 kilometres to Chateaurougedansles-bois we convert it to 10 miles, and it does not sound so bad. Similarly, when we see "4.5 k." on the "kilostone" (I nearly said milestone) it's really under three miles.

But I digress. Selecting my "Duggie" from the stable I endeavour to walk beside it to start up. For a few yards there is some doubt as to whether I am slipping away from the bike or whether the bike is sliding away from me. Eventually she fires. I hop on, slip as I do so, and catch my knee on the carrier. Horrible pain for a few seconds, but it is better to stick on now I've started.

I indicate to the traffic man on point duty that I wish to go to the right at the cross-roads. He waves me on, holding up a car which I should otherwise have run into. Whether these traffic men are ex- or prospective policemen I am not aware, but they are a splendid institution and must have prevented hundreds of accidents.

Bump! It's only a water gully. Crash! A lorry hole this time. A lorry hole, or young shell hole, is a delightfully evenly sloped depression in the road, about two yards across, and anything to a foot deep,

where a lorry's hind wheel has buzzed round in the mud without propelling the vehicle in any direction, except, perhaps, sideways.

One does get variety out here, anyway. I am now on a long exposed stretch which the wind has dried up. Progress is possible at about 20 m.p.h. The surface is good. No worse than some of the South London pot-holeys' routes. I touch the saddle occasionally and bless my knee grips. But the road narrows and I am hung up behind a convoy, with a column of troops and their wagons coming in the opposite direction. Now and again, by vigorous foot slogging, I can sneak past a lorry. The wheels look horribly near. So does that mule.

"Where the — d'you think you're going?" But there's no time for repartee. My blue and white band carries me everywhere and gives me preference over all traffic. A village, typically French, Bairns-fatherian barns: walls of mud, with holes made by mice, the inevitable pump, being worked by a fatigue party; troops of every grade and regiment; lorries, cars, horse transport—through it all I thread my way, pretending I am in a non-stop trial, and not deigning to stop for anyone or anything. The traffic man with his flag waves me up to the right; a steep hill, inches deep in slime, confronts me; just like a reliability trial, this; I slither up it, passing a side-car which has just reached the ditch after a crablike movement; conking out; must change down; nothing doing; I get off to investigate and find a pin in the gear change mechanism has sheared; here is a nice kettle of fish; it only wants a nail to put things right, but few people carry nails as part of their equipment, though they may frequently be picked up in tyres when not wanted. So I change gear with my pliers, decide that bottom is good enough for the present, and continue.

In the next adventure I am nearly brained by the combination of a skid, the projecting end of a tree trunk on a lorry, and a curve in the road. Having survived this I get hung up once more by a lorry which (I don't blame it) hugs the crown of the road (?). I must either crawl behind it or plough through a foot of rutty mud at the side; once bit, twice shy; last time I tried this it was a toss up whether the back wheel of the lorry passed over me or the machine; I only just won, and the machine was "evacuated," or sent to the base for repair. (Some repair!) So I hang behind until the lorry has to swing over to pass a staff car, and before it can get back on the crown I nip past. It is on occasions like this that one longs for a T.T. "Tank," on which one could take to the fields.

After nearly an hour's run "Boo Koo" is reached. I am quite glad to leave my bike and hobble into the office. Average speed about 12 m.p.h., and even that took some doing and left me tired out.

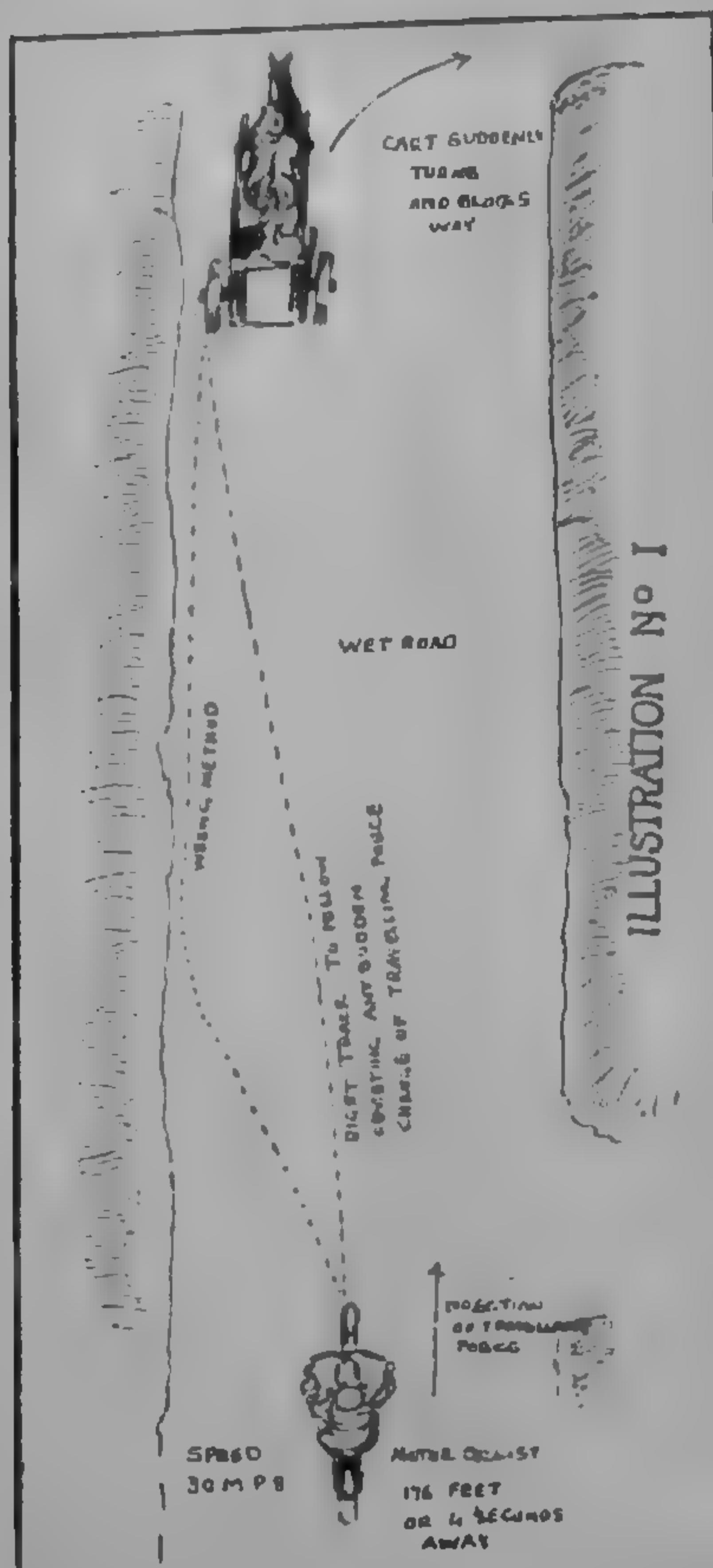
DO YOU KNOW HOW TO DRIVE?

The Correct Methods of Brake Application on Skiddy Road Surfaces.

IN all probability 99 motorcyclists out of 100, no matter how little experience they may have had, if asked "Do you know how to drive?" would answer in a decisive affirmative. On the other hand, however, one has only to keep one's eyes open when riding along an ordinary main road to realize that hundreds of motorcyclists, although they may claim to steer their machines so many miles a year, cannot truly be stated to drive their machines at all. If we take as an instance the method of brake application on skiddy roads we find, in nine cases out of ten, that faulty methods are only too often resorted to. Indeed, with regard to the brake application it is often difficult in an emergency to apply the brake in the correct manner. It is almost an instinct to jam the pedal down as far as it will go, often enough causing an ignominious position on a greasy road, or in the dust of a ploughed highway in summer time. It is the purpose of this article to deal with faulty brake application and skiddy road negotiation.

Correct braking is an art that is gradually being overlooked through lack of study. It requires judgment of speed conditions, road positions and position of machine on the road. Let us take as our first instance that of a motorcyclist travelling on a wet road at 30 miles per hour straight ahead, it being remembered that 30 m.p.h. means that for every second of time the rider and machine cover 44 ft., or 14 yds. 2 ft., and he meets with certain road conditions as shown in the first illustration.

The motorcyclist is overtaking a cart, and the



latter makes a sudden turn to the right and blocks the road. There is a distinct temptation to swerve directly to the left, with the result, as the road is wet, of a very good chance of a skid. The proper track that should be taken is shown. During the four seconds that will elapse before the motorcyclist reaches the point where the cart has turned to the right, this latter will have drawn out of the way, allowing the rider to pass by with safety.

A wet tarred road, well cambered, should also be treated with respect, as it is almost as bad as wet wood paving in its skidding properties. The necessity also of riding on the crown of such a road is shown in illustration No. 2.

The next riding problem of importance is that of cornering, which is shown in illustration No. 3. A corner should never be taken fast, especially when the road is wet, and another point to guard against is to avoid removing the left foot from the footrest. There is a temptation to do this, but it is wrong, as the whole balance of the machine and rider is upset, more weight being thrown on to the inside of the machine. The rider should sit firmly in the saddle and make a wide swing before the corner is reached, so as to make the curve as gradual as possible.

Dry roads also have their perils if a brake is faultily applied. A dry skid is even more difficult to check than a skid encountered on a wet road. Violent attempts to recover control of the machine are nearly always fatal, and, as a matter of fact, better results are obtained in allowing the machine to recover itself. Perhaps the reason for this is that



Fuel Mixtures and Lubrication.

Recent and exhaustive experiments (reported widely in the Motor Press) have enabled C. C. Wakefield & Co. to determine the Motor lubricant which most assists the searching properties of paraffin and prevents to a great extent this fuel passing the piston rings.

Castrol "C" (Summer) one of their standard grades is the lubricant that has been found to be the most efficient. A further extended and observed test is now being run over some 1200 to 1500 miles upon Castrol "C" (Summer) and when completed the exact mileage from one gallon of the grade will be advertised.

Castrol "C" (Summer) is obtainable at all garages.

C. C. WAKEFIELD & Co.,

WAKEFIELD HOUSE,
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C.D.C.

The

*Compactness &
accessibility*



of the

New Imperial

have received the most careful attention in all details. The illustration shows how easily the Gear Box of the "New Imperial Light Tourist" may be taken out or adjusted for belt or chain. The two nuts A and B are loosened and the box moves forward or backward. This is only one of the many advantages of the machine of

PERFECT DEPENDABILITY.

Two-speed Model	£38	0	net.
Ditto, with clutch and kick starter	£44	8	"
Lady's ditto	£46	8	"

Sole Makers—

Send postcard for Booklet
"Don't take Risks—and Why?"

NEW IMPERIAL CYCLES, LTD., BIRMINGHAM.

Established
1887.



Just the opinion of a friend or trusted dealer carries a good deal of weight—but how much more convincing is that recommendation when backed by actual facts and proof! In the case of the

JOHN BULL TYRES and BELT,

for instance, personal experience of their exceptional quality and entire reliability is supported by the *proved average* backwheel mileage of 4,996 miles for the tyre, and 15% to 33% extra driving surface for the belt.

Ask your dealer about them.

Leicester Rubber Co., Ltd., LEICESTER.



ANNIVERSARY
EMANCIPATION
NUMBER of

The **Motor**

TUES.
14th
NOV.
1916

Offices of "THE MOTOR."
7-15, Rosebery Avenue, E.C.

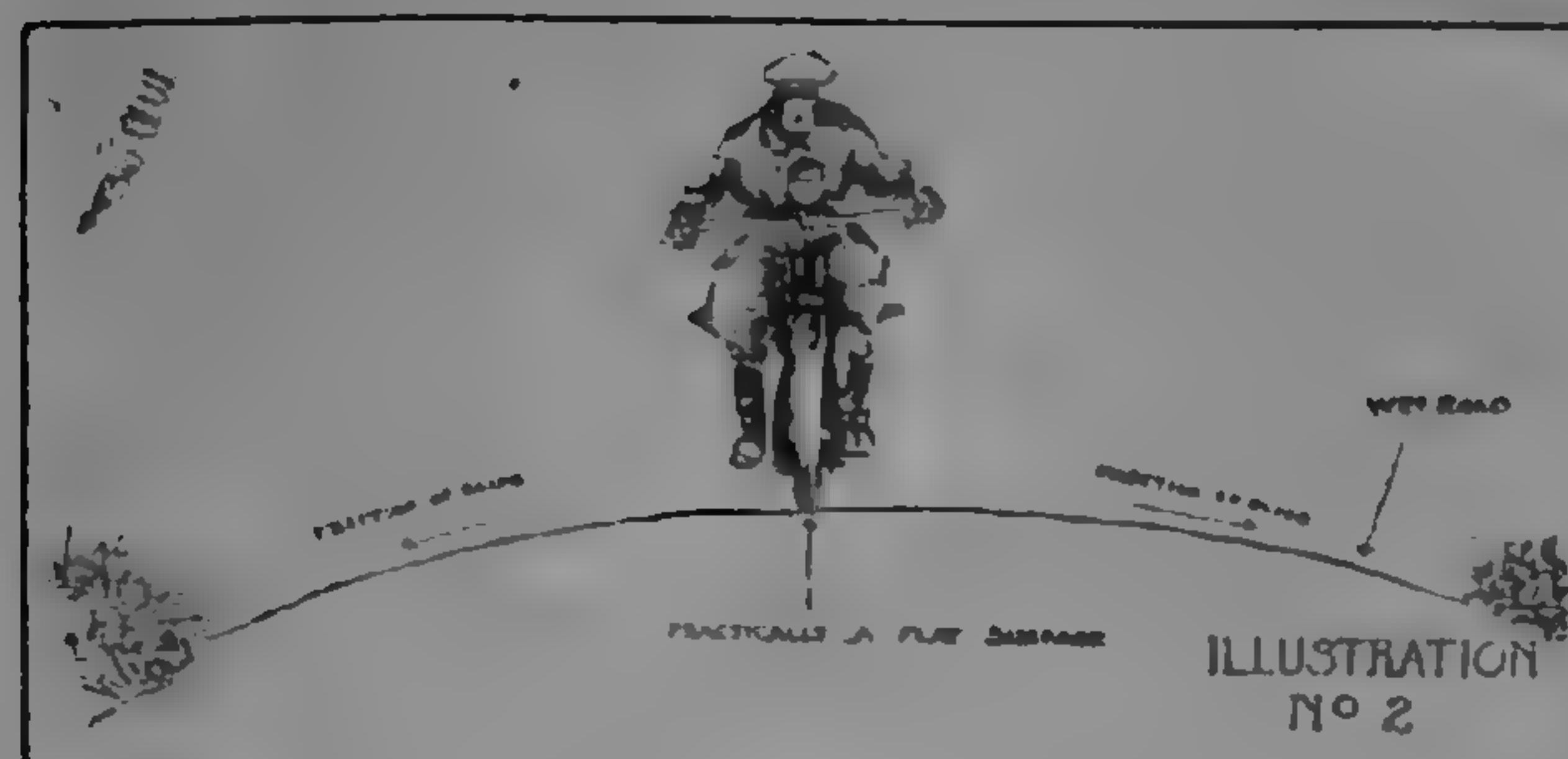
**ORDER
EARLY**

"THE MOTOR" of 11th November will appear on the actual date of the first run of motorcars from London to Brighton, exactly 20 years after the coming into force of the Act emancipating the motorcar from the encumbering thraldom of the red flag. In the midst of a war in which the motorcar is playing such an important part, this anniversary is particularly significant. The special number of "THE MOTOR" will deal with those early days and the pioneers who took part in the beginning of the horseless age. Illustrations of the old and the new will be an important feature of the special issue, and many interesting articles will be included.

Do You Know How to Drive? (contd.).

whilst the dust is tending to guide the wheel one way the latter, when corrected in motion, banks up the dust, with the result that a skid is caused (illustration 4).

To pull up under these conditions it is advisable to bring the brake into operation gently, release and

ILLUSTRATION
NO 2

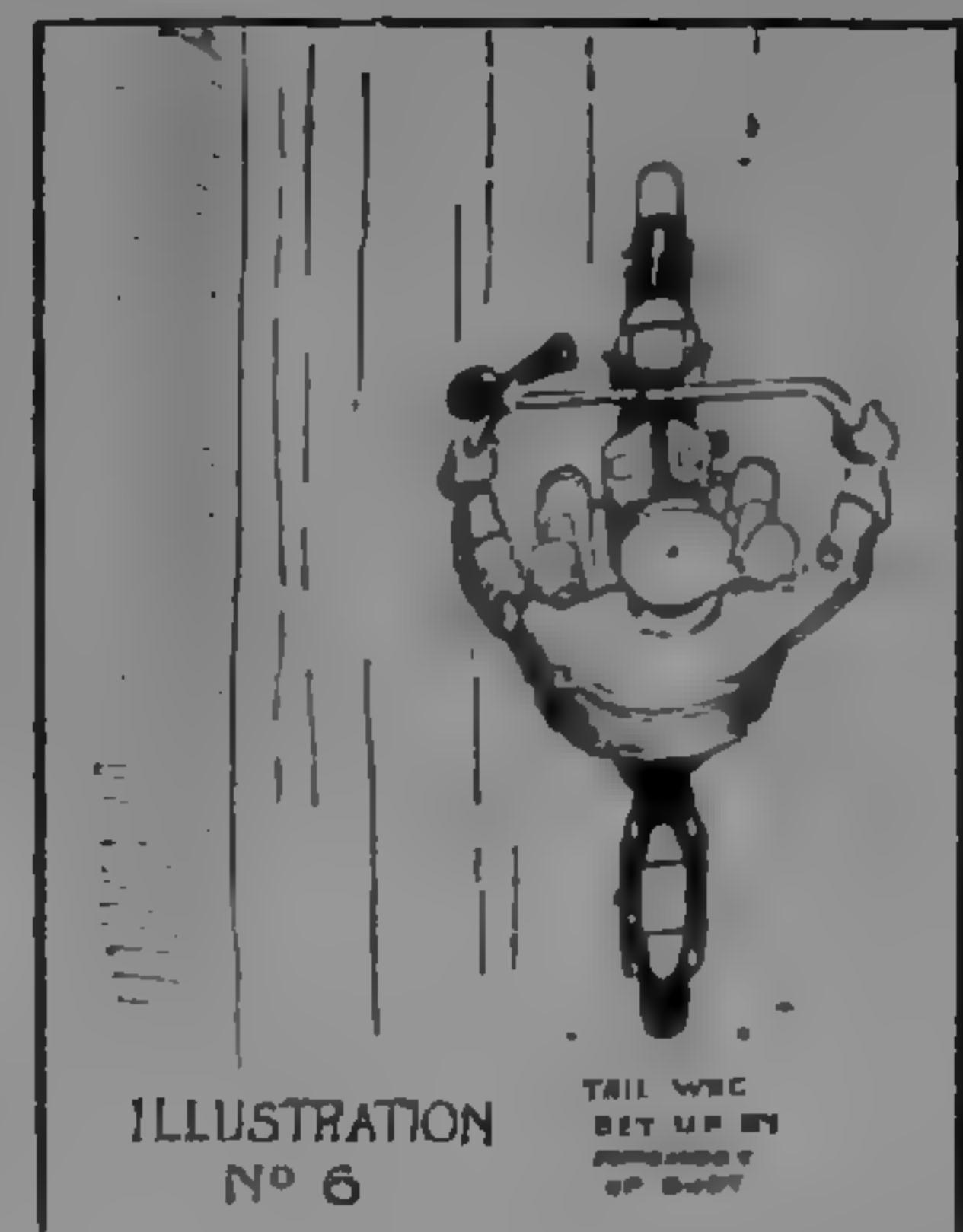
apply once more, in order to enable the machine to recover itself. Naturally, a greasy road is the most dangerous, especially when brakes are applied. In all probability it will be found that when the latter course is necessary it is advisable to steer towards the gutter. If, however, the machine is well on the left-hand side of the road it should be steered towards the crown. The cause of this preventing skids

is in all probability due to the fact that the travelling force tends to push the machine into the opposite direction of the skid (illustration 5).

In conclusion, perhaps the best method of preventing skids, when it is necessary to apply the brake on skiddy roads, is to sit as still as possible (illustration 6). Frantic jerks of the body, wrongly made in order to overcome the tendency of the machine to slip from under the rider, are a mistake. If the rider has confidence to sit as still and as firmly on his machine as possible he will find that many a bad skid can be easily overcome.

The Difficult Act.

Giving judgment at Kirkcudbright Sheriff court recently, in a prosecution for driving to the danger of the public, his Lordship said that he always found the section of the Act exceedingly difficult to apply to the facts of any case. Respondent was finally found not guilty. We congratulate his Lordship on his broad-mindedness; down South the odds would be on a heavy fine.

ILLUSTRATION
NO 6

NOTES AND NEWS.

The Russian Motorcycle Trade.

We understand from the "Export World and Commercial Intelligence" that the motorcycle trade in Russia, which, prior to the war, was very largely in the hands of German firms now liquidated, is very much worth the while of British manufacturers to capture. At the present time America is almost entirely in possession of the Russian market, and it will require a great effort on the part of Britain after the war to obtain a share of this trade from the more and more firmly established American firms.

Lamps and the Law.

What constitutes a lens in a motor-car lamp was the point for decision by the Gainsborough (Lincolnshire) magistrates, who, on Wednesday last, declined to register a conviction against Percy F. Marshall, of Clayworth Hall, Notts., on a charge of failing to obscure the lamps of his motorcar. The police alleged that the oil lamps of defendant's car had lens fronts and reflectors, and were casting a beam of light 100 yards down a street. When defendant told the police that he thought the Order only applied to acetylene or electric lamps he was told that lamps which had lenses or other devices to concentrate the light should be obscured. Defendant's solicitor produced one of the lamps, and, after quoting from the Order, maintained that the glass was not a lens, as it was exactly of the same thickness in every part. The Bench decided not to convict, but ordered defendant to pay 10s. expenses.

When Using Heavy Fuels.

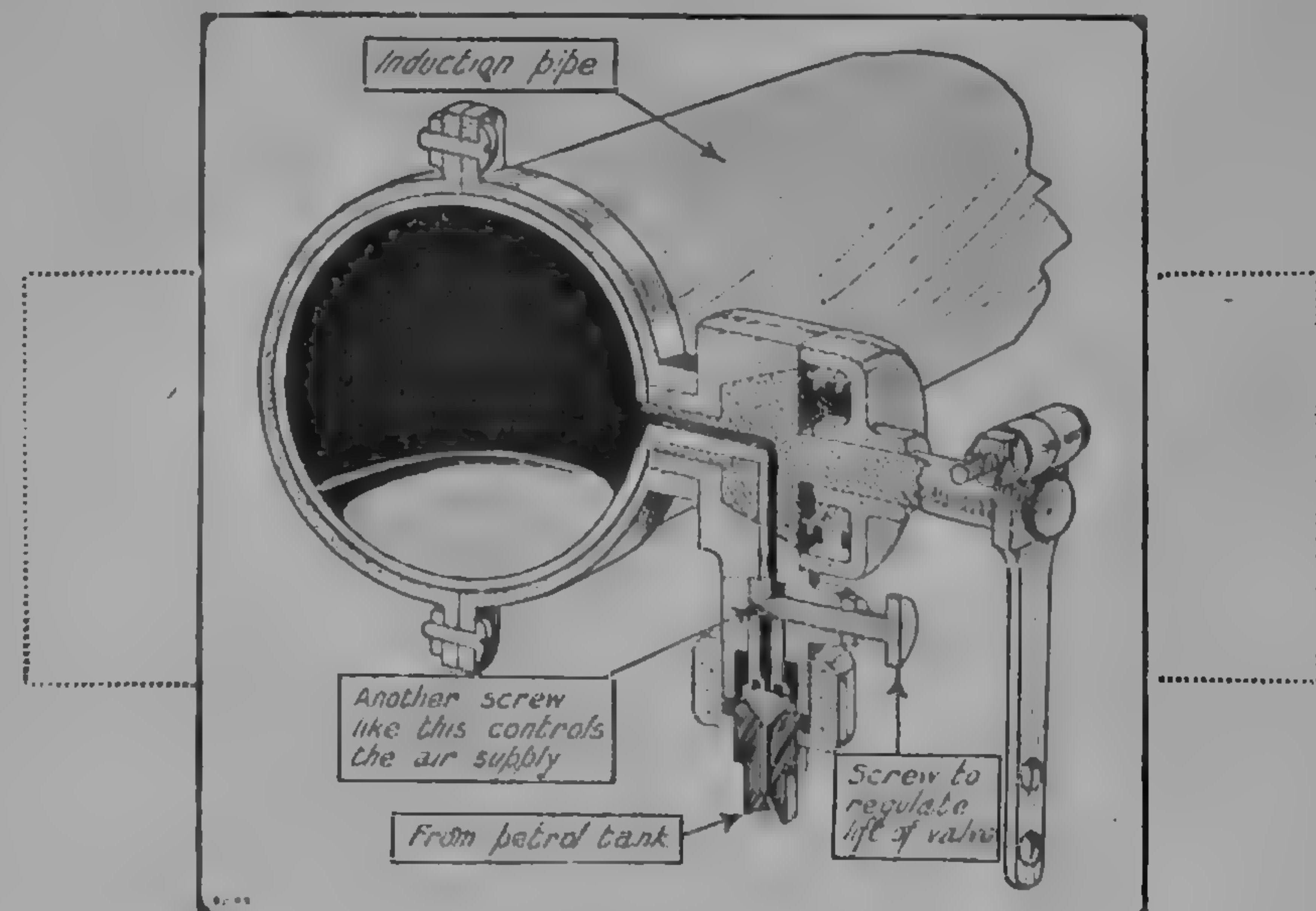
An ingenious "Automatic Petrol Starter and Slow Running and Mixing Device," to give it its full title, is illustrated herewith.

Briefly the idea is to admit petrol into the induction pipe, while the carburetter may be full of substitute, and to do so in a more scientific and less haphazard manner than is generally the case. The petrol from a spare tank is fed to a needle valve which is opened by the suction of the engine, the amount of opening being controllable by the screw illustrated, placed just above the needle valve itself. Once set, this regulating screw is secured by a locknut.

To bring the apparatus into action the long lever (shown on the right) is pulled, and this turns a conical-shaped piston

until a hole drilled through it is in register with the needle valve pipe. Thus petrol is admitted direct into the induction pipe and the engine may be started. As soon as the engine is warm the carburetter throttle is opened and the engine turned on to heavy fuel, while the lever controlling this new apparatus is released by means of Bowden wire or similar control and thus no more petrol is used.

One of the many advantages of the idea seems to be its ease of control, as it may be brought in or taken out of action from the handlebar.



The — petrol injector for attachment to the inlet pipe, when heavy fuels are employed.

WOMAN AND A Feature for THE VAGARIES OF OUR CLIMATE—THE WINNING COSTUME

A LAS for the vagaries of this unhappy climate! Recently I was being baked a tender strawberry shade by broiling sunlight on a far Devon shore, and wishing that I could spend my days in the sea, with brief intervals of terra firma, instead of vice versa. And now I look out on what might be a severe January evening, instead of twilight in early autumn, and wonder, sadly, if I shall ever ride over dry roads again. It is consoling, however, to consider that we are now probably entering upon the last winter of war, and next summer—!

But such thoughts are best left in a bottom drawer of one's brain till spring. Have any of my readers noticed the exceptionally brilliant colour of the autumnal berries this year? They prognosticate a severe winter to add to our joys, and I am at present seriously considering the question of a warm motor-cycling rig-out for the coming cold days. I believe this will be an "expanded" model of the costume which won first prize in our Skirtless Dress Competition last spring. The designer, Mr. R. Davies, of 38a, Market Street, Ashby-de-la-Zouche, has improved the skirt, which was the original principal feature, and added a most attractive and cosy coat to be worn with it. Readers will see from the photograph that the former rather resembles the R.F.C. tunic in cut, and, as far as the warmth question goes, could it be on better lines? It is smart and up to date, too, and commends itself to me very strongly. I might add that any ladies to whom the photograph appeals should communicate with Mr. Davies, who can supply them with similar rig-outs at a moderate figure.

After my experiences with cold hands during the early part of last winter, I was moved to invest in a pair of really "tip-top" coney-seal gauntlets, and I have never ceased to applaud myself therefor. I have used the gloves constantly for months, and they are



HER MOTORCYCLE Feminine Riders

IN OUR RECENT
COMPETITION ■ ■
FURTHER IMPROVED.

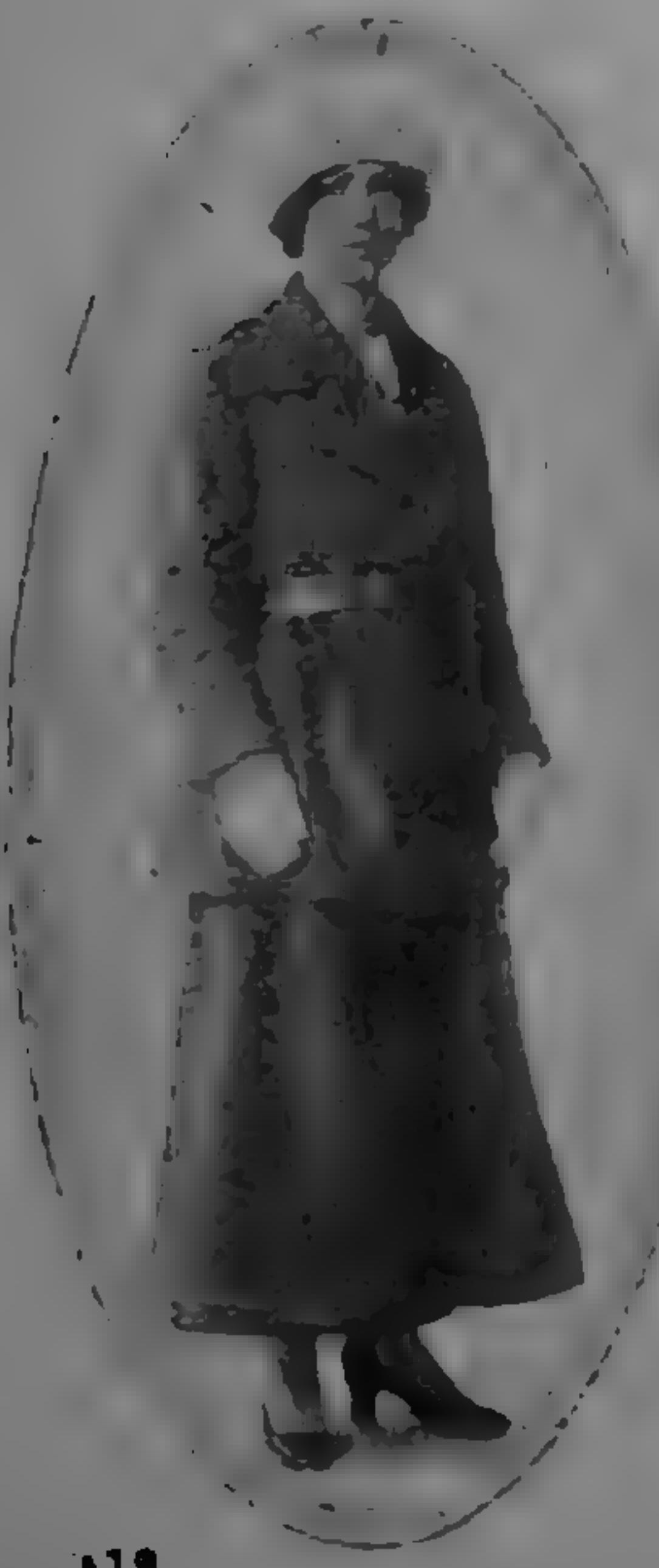
still as good as ever, though with an added modicum of dirt, and I have never suffered from cold hands since purchasing them. They are lined with warm, white fur, and backed with coney seal; they come half-way up my arms, and they cost me the noble sum of 18s. during the London glove sales; but they are worth it! Good gloves are always a safe investment. I believe, at any rate, for motorcyclists. These are size 7, by the way; it is *not* my usual size. I beg to state, but the loose-fitting glove is, of course, much warmer than a tight one, and I like a motor-cycling glove to slip on and off easily. It saves time and temper when delicate adjustments are required en route on a cold day.

Colour and Motor-cycling Costumes.

"Colour," said a great modiste once, thereby achieving at one blow a graceful saw and an excellent advertisement for herself, "is only the beginning of dress."

I agree—with modifications. In those filmy, beautiful (and quite unattainable) creations upon which we sometimes feast our eyes in the market places of the rich and heaven-favoured, this aphorism doubtless applies unreservedly. Have you never seen a woman looking regal in bilious purple with jaundice trimmings—but straight from Paris? Because I have. When one comes to plebeian motor-cycling rig, though, the shoe is very much on the other foot. We do not go in largely for hand-sewn tucks—millions of these—lacy extravagances, priceless ornamentations, and, on top of them, a superb Parisian cut, for our motor-cycling garments.

I, for one, however (and I think most other lady riders who like to look attractive when a-wheel), believe that a splash of the right colour worn by the fair driver is the making of a smart turn-out.



THE
IMPROVED



"WINNING"
COSTUME.



THE
LITTLE
WORD

Bates

ON

TYRES

*means big things
like this!*

Perth, Western Australia.

Gentlemen,—In November, 1914, on the advice of a friend, I had Bates Tyres fitted to my new mount. The machine has now been used for 16 months, and the tyres are a treat to see. The front has not even been deflated, and looks like new, whilst the back one is still in perfect condition. I am so delighted with my first experience of Bates Tyres that in future I will see that my machines are always equipped with them.

Yours sincerely, C.F.K.

The above is one of many proofs of the growing popularity of Bates Tyres, the increased output of which has enabled the makers to reduce prices, in spite of the higher cost of materials !

W. & A. BATES, Ltd.,
St. Mary's Mills,
LEICESTER.
Depots at London,
24, Carlton Place, GLASGOW,
and NEWCASTLE.

Riders should lose no time in sending for our New List.

Bates
SUPER RUBBER
Tyres

Colonial Wholesale Stockholders:

Smith, Denham and Co., Henderson's Buildings, Von Brandis Street, Johannesburg, S.A.; Childs, Parr and Joseph, Nairobi, British East Africa; David F. Loring, 9, Weld Road, Kuala Lumpur, F.M.S.; Cycle and Motor Supplies, Ltd., Farish Street, Wellington, N.Z.; Cornell and Son, 122, Pirie Street, and 29, Hyde Street, Adelaide, South Australia; A. G. Heeling and Co., Ltd., 854-856, Post Office Place West, Melbourne, Australia; Bennett and Barkell, Ltd., 121-123, Castlereagh Street, Sydney, Australia.

Petrol Economy

How it is affected by lubricating oil.

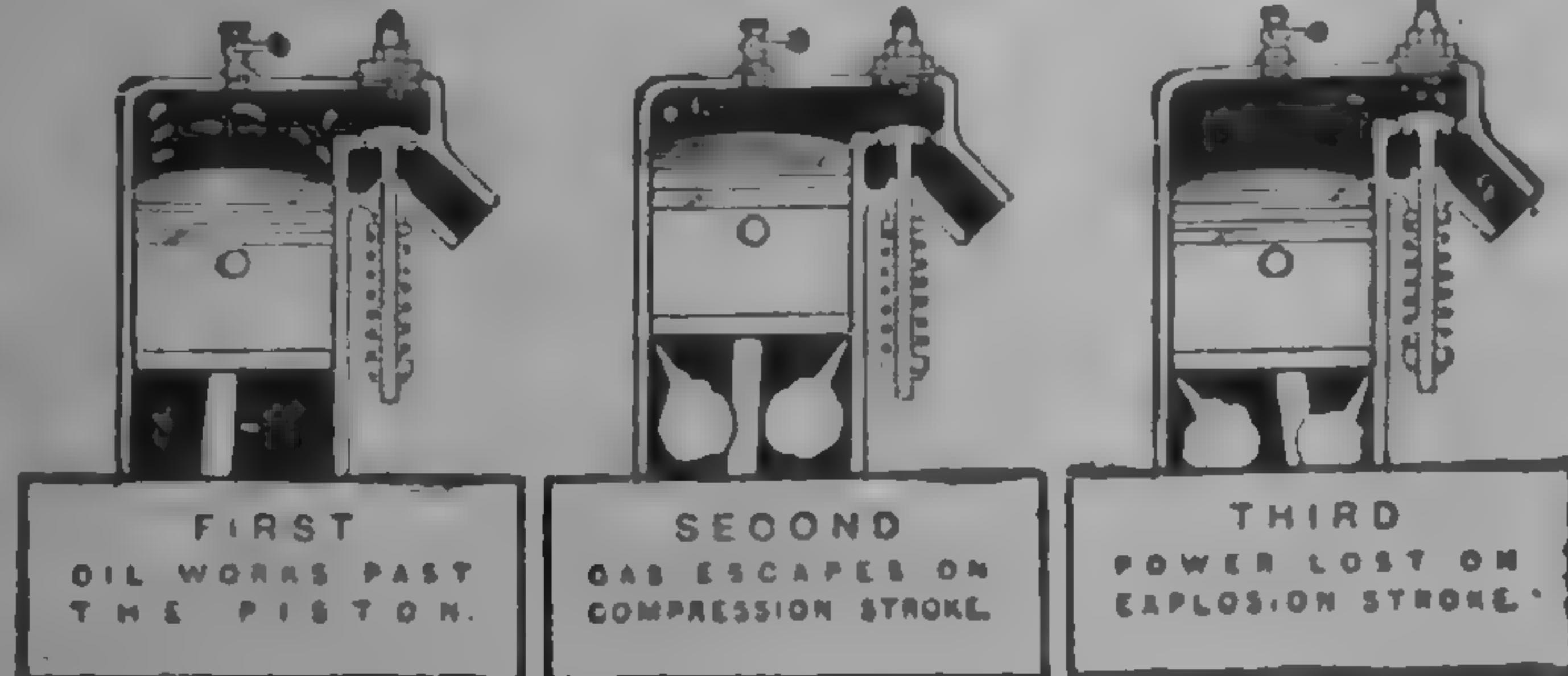
Have you noticed that excessive consumption of lubricating oil is usually accompanied by excessive petrol consumption?

The drawings below indicate how this waste occurs.

In each cylinder the space between the piston and the cylinder walls is usually termed "piston clearance."

Each piston is fitted with a number of rings which are free to expand and contract, and are designed to fill this clearance.

If the body of your lubricating oil fails to seal the piston rings, three things happen:



First: The oil rapidly works up past the piston rings into the combustion chamber. There it is burned with each explosion. Oil is used up rapidly. Excess carbon deposit results.

Second: With a poor piston ring seal, the gas mixture works down past the piston rings on each compression stroke. Gas is wasted.

Third: On the power stroke the exploding fuel charge works down past the piston rings. Power is lost, and petrol consumption mounts up.

Petrol economy and full power both demand oil which correctly seals the piston rings in your motor.

The design and composition of the pistons, the piston clearance, and the number, construction, and fit of the piston rings as well as the type of lubricating system employed vary in different motors.

Different motors, therefore, demand oils of different body.

On the right we print in part our Chart of Recommendations. This Chart, which represents our professional advice, is the motorists' standard guide to scientifically-correct lubrication.

In use you will find that the correct grade of Gargoyle Mobiloils will maintain full compression and prevent the escape of the expanding gases on the power stroke, thus assuring—

Petrol Economy,
Power Economy,
Oil Economy,
Minimum carbon deposit.

Free on Request.

An interesting booklet entitled "Correct Lubrication," which contains our complete Chart of Recommendations, will be sent to you on request.

Gargoyle Mobiloils are sold by dealers everywhere.



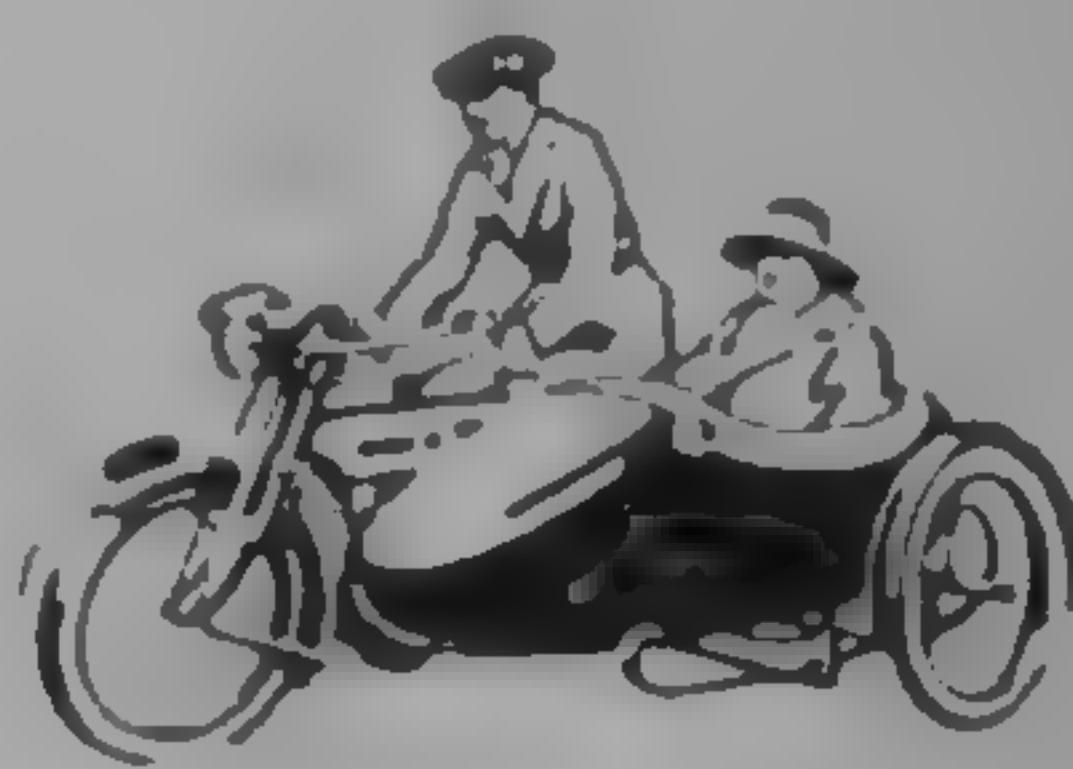
Mobiloils

A grade for each type of motor.

VACUUM OIL COMPANY, Limited,
CAXTON HOUSE, WESTMINSTER, S.W.

Telegrams: "Vacuum, Vic., London."

Telephone: Victoria 6620 (6 lines).



Correct Lubrication

Explanation.—In the Chart below, the letter opposite the car indicates the grade of Gargoyle Mobiloils that should be used. For example, "A" means Gargoyle Mobiloil "A"; "Arct" means Gargoyle Mobiloil "Arctic" &c.

MODEL OF	1916	1915	1914			
MAKE OF CAR	SPRING	WINTER	SPRING	WINTER	SPRING	WINTER
A.R.C. ...	A	A	BB	BB	BB	BB
Abingdon ...	BB	BB	BB	BB	BB	BB
A.J. ...	BB	BB	BB	BB	BB	BB
Allard-Matchless ...	—	—	BB	BB	BB	BB
Allon ...	TT	TT	TT	TT	TT	TT
Ariel ...	BB	BB	BB	BB	BB	BB
— 2-stroke ...	TT	TT	TT	TT	TT	TT
Antwheel ...	BB	BB	BB	BB	BB	BB
Bar ...	BB	BB	BB	BB	BB	BB
Bradbury ...	BB	BB	BB	BB	BB	BB
Brough ...	BB	BB	BB	BB	BB	BB
B.R.A. ...	BB	BB	BB	BB	BB	BB
Calcutt ...	TT	TT	TT	TT	TT	TT
Caltherpe ...	BB	BB	BB	BB	BB	BB
— Minor ...	TT	TT	TT	TT	TT	TT
— 2-stroke ...	TT	TT	TT	TT	TT	TT
Chair-Law ...	BB	BB	BB	BB	BB	BB
— 2-stroke ...	TT	TT	TT	TT	TT	TT
Clyne ...	BB	BB	BB	BB	BB	BB
— 2-stroke ...	TT	TT	TT	TT	TT	TT
Coenaght ...	TT	TT	TT	TT	TT	TT
Diamond (Villiers) ...	TT	TT	TT	TT	TT	TT
(other models) ...	BB	BB	BB	BB	BB	BB
Dol ...	BB	BB	BB	BB	BB	BB
Douglas ...	BB	A	BB	A	BB	A
Elswick ...	TT	TT	TT	TT	TT	TT
Endfield (J.A.P.) ...	BB	BB	BB	BB	BB	BB
(other models) ...	TT	TT	TT	TT	TT	TT
Excelsior 2-stroke ...	TT	TT	TT	TT	TT	TT
(other models) ...	BB	BB	BB	BB	BB	BB
Harley-Davidson ...	B	A	A	A	A	A
Hawthorn ...	BB	BB	BB	BB	BB	BB
Henderson ...	A	A	A	A	A	A
Robert (J.A.P.) ...	BB	BB	BB	BB	BB	BB
(Villiers) ...	TT	TT	TT	TT	TT	TT
Humber ...	TT	TT	TT	TT	TT	TT
Indian ...	B	A	B	A	B	A
Ivy ...	BB	BB	BB	BB	BB	BB
— 2-stroke ...	TT	TT	TT	TT	TT	TT
James ...	BB	BB	BB	BB	BB	BB
— 2-stroke ...	TT	TT	TT	TT	TT	TT
J.E.S. ...	TT	TT	TT	TT	TT	TT
J.H. (Villiers) ...	TT	TT	TT	TT	TT	TT
(other models) ...	BB	BB	BB	BB	BB	BB
Les-Francis ...	BB	BB	BB	BB	BB	BB
Levis ...	TT	TT	TT	TT	TT	TT
L.M.C. ...	BB	TT	BB	TT	BB	TT
Matchless ...	BB	BB	BB	BB	BB	BB
Mond (J.A.P.) ...	BB	BB	BB	BB	BB	BB
(Precision) ...	TT	TT	TT	TT	TT	TT
Motomocoche ...	—	B	BB	B	BB	BB
New Hudson ...	TT	TT	TT	TT	TT	TT
(J.A.P.) ...	BB	BB	BB	BB	BB	BB
New Imperial ...	BB	BB	BB	BB	BB	BB
Norton ...	BB	BB	BB	BB	BB	BB
N.U.T. ...	BB	BB	BB	BB	BB	BB
O.K. ...	TT	TT	TT	TT	TT	TT
P. & M. ...	BB	BB	BB	BB	BB	BB
Pope ...	B	A	B	A	B	A
Quadrant ...	BB	TT	BB	TT	BB	TT
Rex ...	TT	TT	TT	TT	TT	TT
Rex-Jap ...	BB	BB	BB	BB	BB	BB
Rover ...	BB	TT	BB	TT	BB	TT
Royal Ruby ...	BB	BB	BB	BB	BB	BB
— 2-stroke ...	TT	TT	TT	TT	TT	TT
Rudge ...	—	TT	BB	TT	BB	TT
Scout ...	TT	TT	TT	TT	TT	TT
Singer ...	TT	TT	TT	TT	TT	TT
Sparkbrook ...	—	—	BB	BB	BB	BB
— 2-stroke ...	TT	TT	TT	TT	TT	TT
Sunbeam ...	BB	BB	BB	BB	BB	BB
See (J.A.P.) ...	BB	BB	BB	BB	BB	BB
(other models) ...	TT	TT	TT	TT	TT	TT
Triumph ...	TT	TT	TT	TT	TT	TT
Tyler ...	TT	TT	TT	TT	TT	TT
Vance ...	TT	TT	TT	TT	TT	TT
Williamson (water-cooled) ...	A	A	A	A	A	A
(air-cooled) ...	—	BB	BB	A	BB	A
Wolf ...	BB	BB	BB	BB	BB	BB
— 2-stroke ...	TT	TT	TT	TT	TT	TT
Zenith ...	BB	BB	BB	BB	BB	BB

HINTS AND TIPS COMPETITION.

[TENTH SERIES.]

An Ingenious Auxiliary Tank—Automatic Switch

ALTHOUGH we are unable to continue with hints and tips devoted to any one make of machine, we shall devote space from time to time to hints dealing with various makes of machines. As in the past we shall award two sparking plugs for all hints published, and shall be pleased to receive future contributions from our readers.

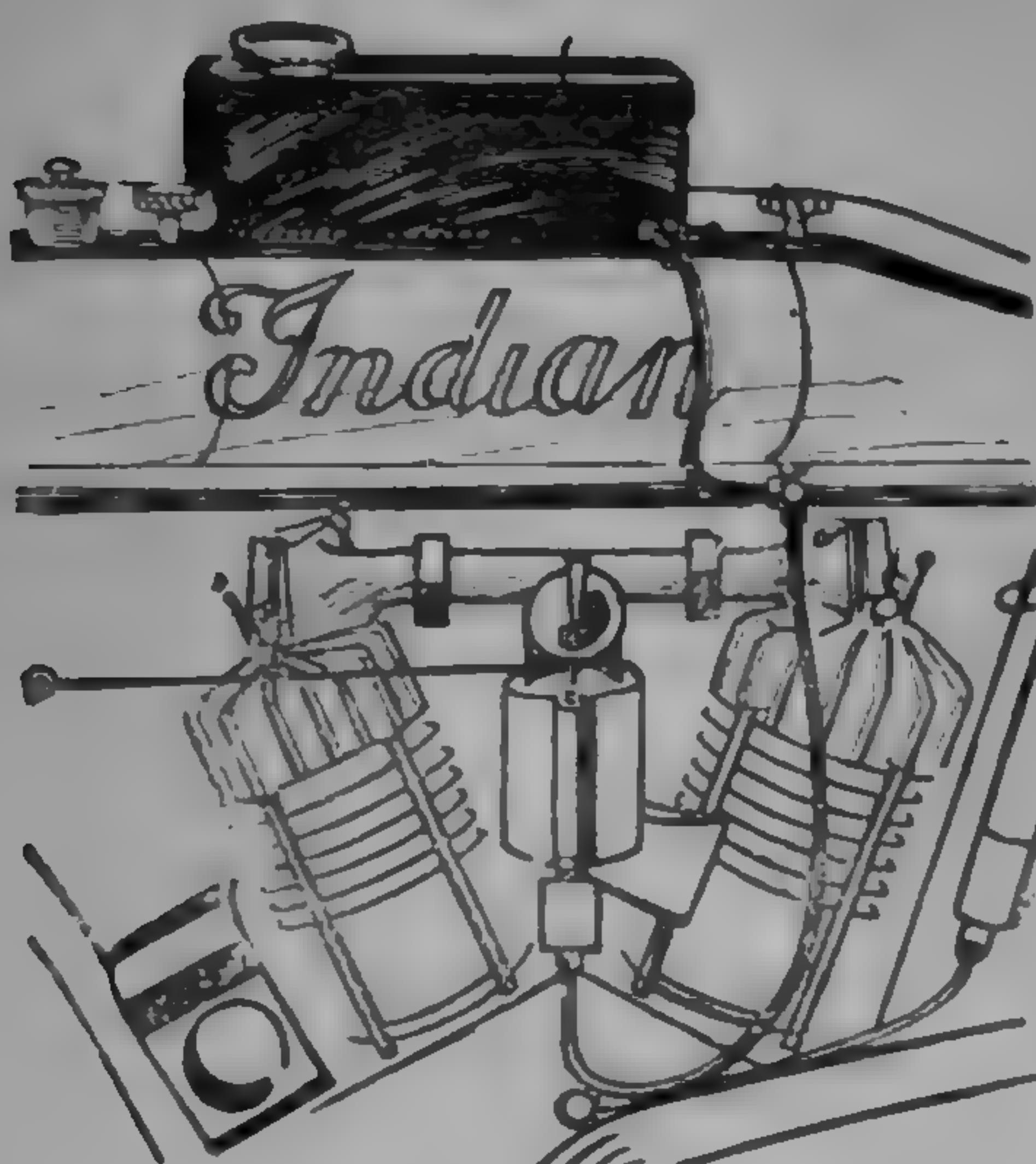


Illustration No. 1.—Converting an Indian toolbox into auxiliary tank. The lid is provided with a filler cap and is soldered to the sides.

auxiliary tank, the metal toolbox, which is fuel tight, can at a cost less than a new tank be easily converted into an auxiliary tank for starting purposes. The lock is removed and the lid soldered to the toolbox. The lid is, of course, drilled to accommodate the filler cap, which is soldered into the lid in the

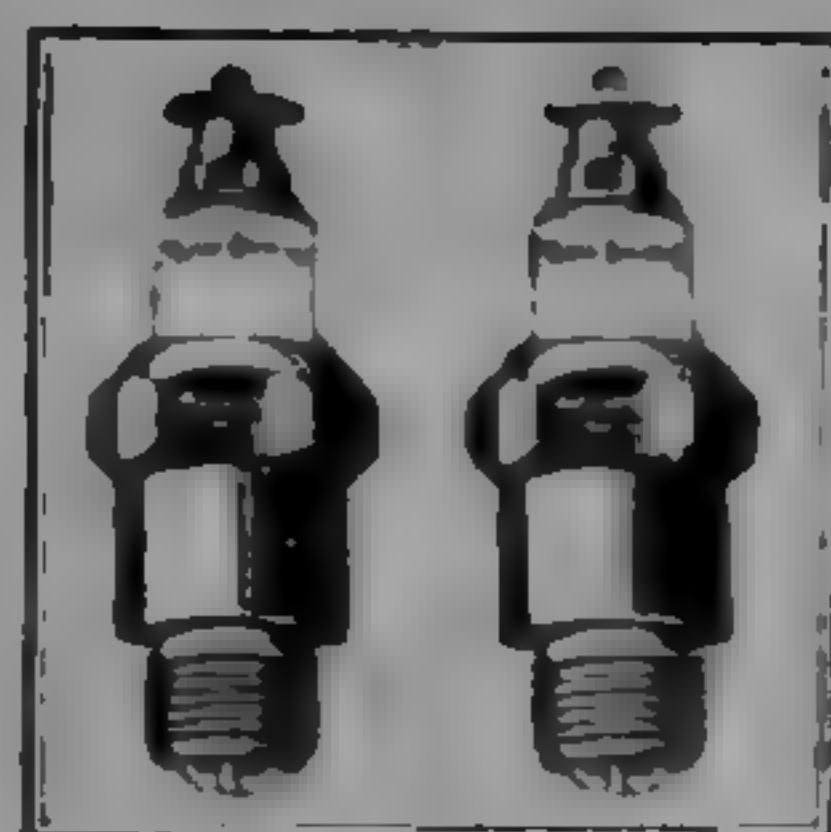


Illustration No. 2.—Douglas gear lever fitted with an automatic switch.

usual way. The tools are accommodated in pannier bags attached to the carrier.

D. Merritt, 68, King Edward Road, Oxhey, Watford.

The Automatic Gear-changing Switch.

The second illustration depicts a method of ensuring that the engine of a 2½ h.p. Douglas shall be

—Ariel Hints—A Goggle Improvement.

"cut out" when gear changing. A switch wire from the magneto is attached to the change speed lever, which is insulated from the quadrant. Through the handle of the change-speed lever a pin (A) is placed, which is normally held out of contact with the quadrant by a spring. When changing gear the pin is depressed, thus stopping the engine through the current from the magneto being earthed.

G. F. C. Huntriss, Blacknor Battery, Portland.

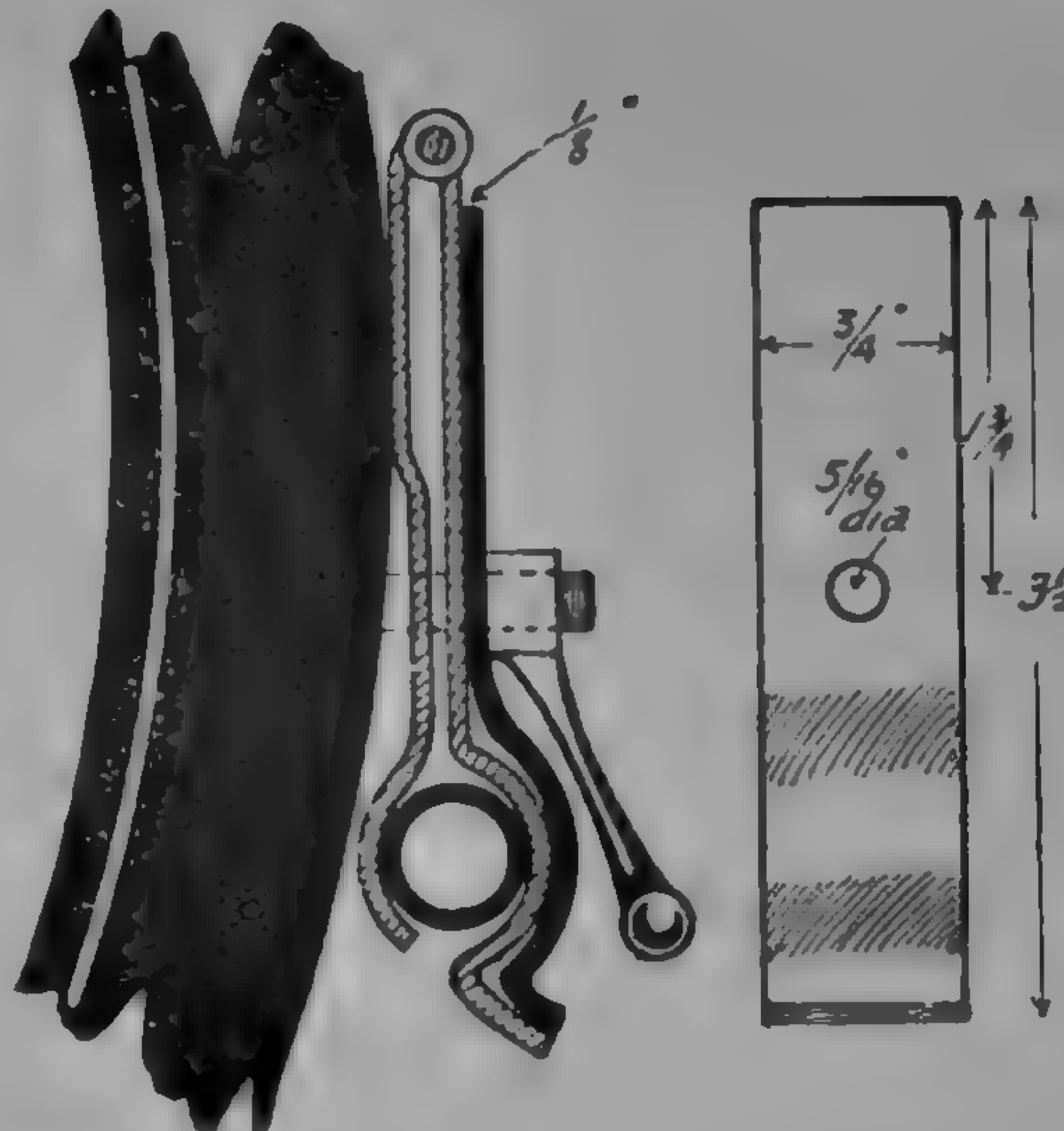


Illustration No. 3.—Preventing the possibility of a stand jolting out of its clip.

Of Interest to Ariel Riders.

Riders of Ariel machines will note with interest the following alterations. Illustration No. 3 shows a front stand improvement. On the earlier Ariel models the addition of a mudshield so increased the weight of the front stand that the clip, which had hitherto proved sufficiently strong, would on bad roads open out and allow the stand to trail on the road. To remedy this a piece of milled steel $3\frac{1}{2}$ in. by $\frac{3}{4}$ in. by $\frac{1}{8}$ in. was drilled and bent as shown in the sketch, and placed between the two legs of the stand, thus giving a $\frac{3}{16}$ clearance between the mudshield and the ground. Illustration No. 4 shows a simple method of lessening puncture possibilities.

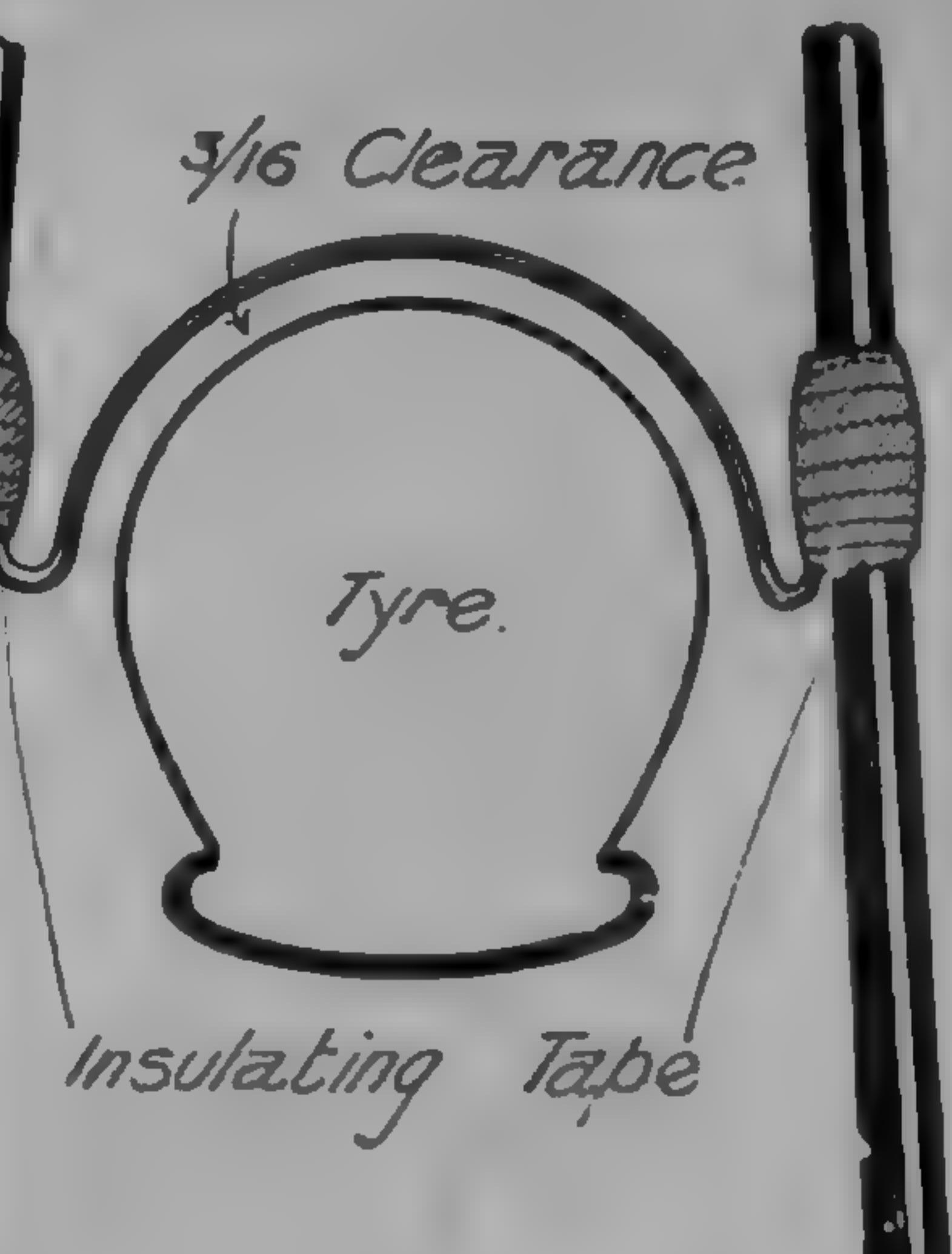


Illustration No. 4.—A simple method of lessening puncture possibilities.

Hints and Tips Competition (contd.).

original clip and the wing nut which, when screwed up, holds the stand in position. This hint, although applying directly to Ariel machines, would be equally well employed on other models, where, often enough, the back stand is a cause of annoyance.

The same reader supplies another excellent yet simple idea for preventing punctures.

A 9 in. strip of mild steel about $\frac{1}{8}$ in. by $\frac{1}{16}$ in. dimension should be obtained, and bent as shown in illustration No. 4. The two upturned ends are bound to the back stays by means of insulating tape. By this arrangement all projecting pieces of flint, nails, and other puncturing materials are caught up

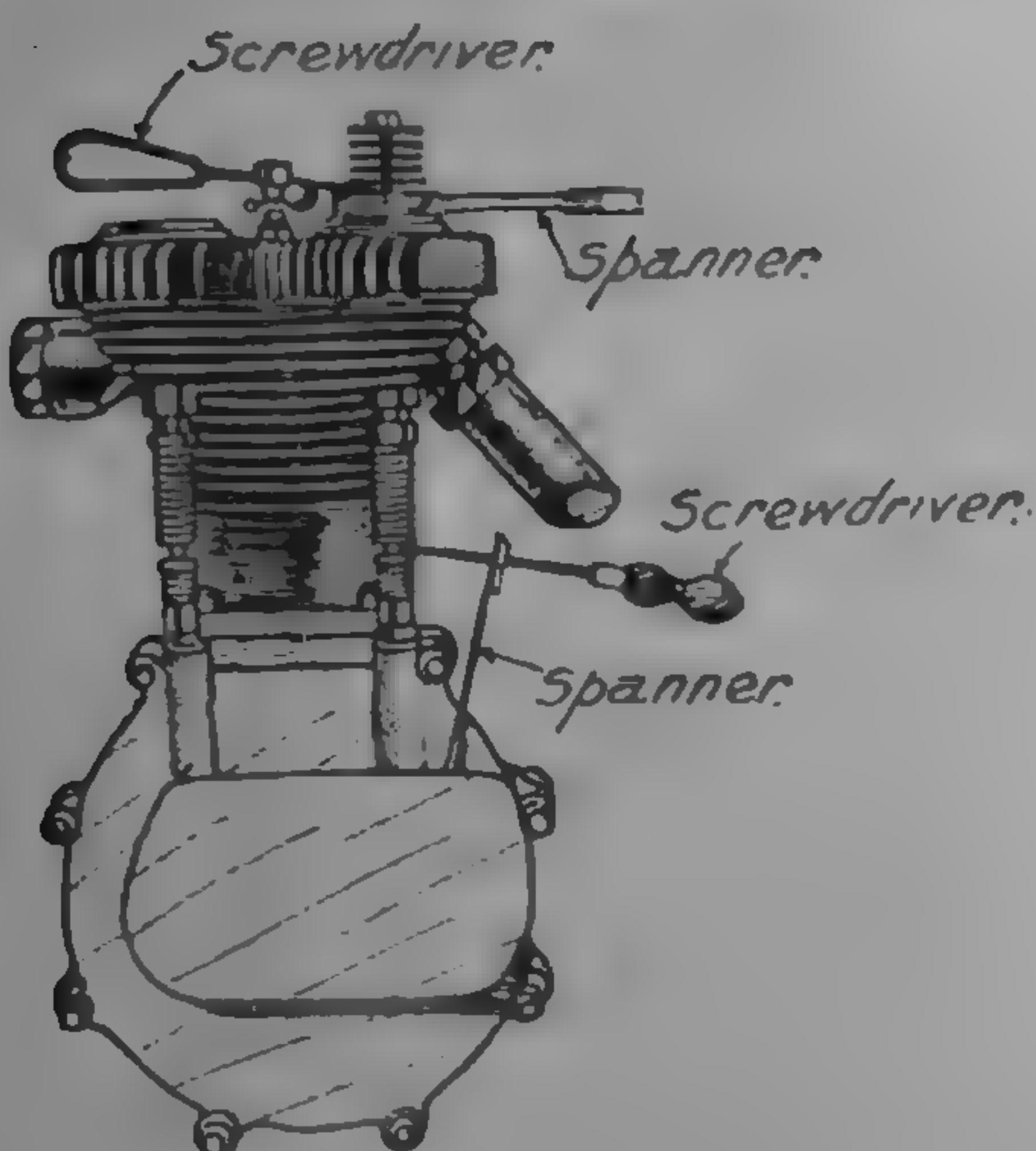


Illustration No. 5.—(Top) Unscrewing an Ariel exhaust valve cap. (Bottom) Compressing the exhaust valve spring.

from the tyre and swept off before the wheel makes another revolution, thus preventing many punctures. It is claimed that if the insulating tape is bound round the stays in a satisfactory manner the iron strip will bend before the tape is torn away.

Illustration No. 5, also provided by the same contributor, shows in the first instance a method of removing the valve cap of an Ariel engine. It is pointed out that after a considerable mileage the cap is extremely difficult to remove, owing to the fact that when the spanner is placed on the cap and the latter is well carboned in, the spanner when hit will tend to jump out of the slots. In order to prevent this a screwdriver is wedged between the lowest flange of the exhaust valve cap and the radiator when

the valve cap spanner is placed in position. The spanner should now receive a sharp blow with a hammer, when the valve cap will come away.

An easy method of compressing the valve spring when it is required to remove the exhaust valve is shown in the same illustration. One of the open-ended spanners which are provided in the tool-roll should be used as a fulcrum for the screwdriver, the tip of which can be placed underneath the cotter. If an obstruction is placed between the head of the valve and the exhaust valve cap in order to prevent the valve lifting, the spring can be very easily raised, the cotter pin removed, and the valve extracted.

I.O., 685, Lieut., R.E.

Leather Bands for Goggles.

Practically every motocyclist has experienced the annoyance of the rubber bands which hold a pair of goggles in position tearing away either from the goggle itself or through perishing. In order to overcome this a suggestion is made that two leather

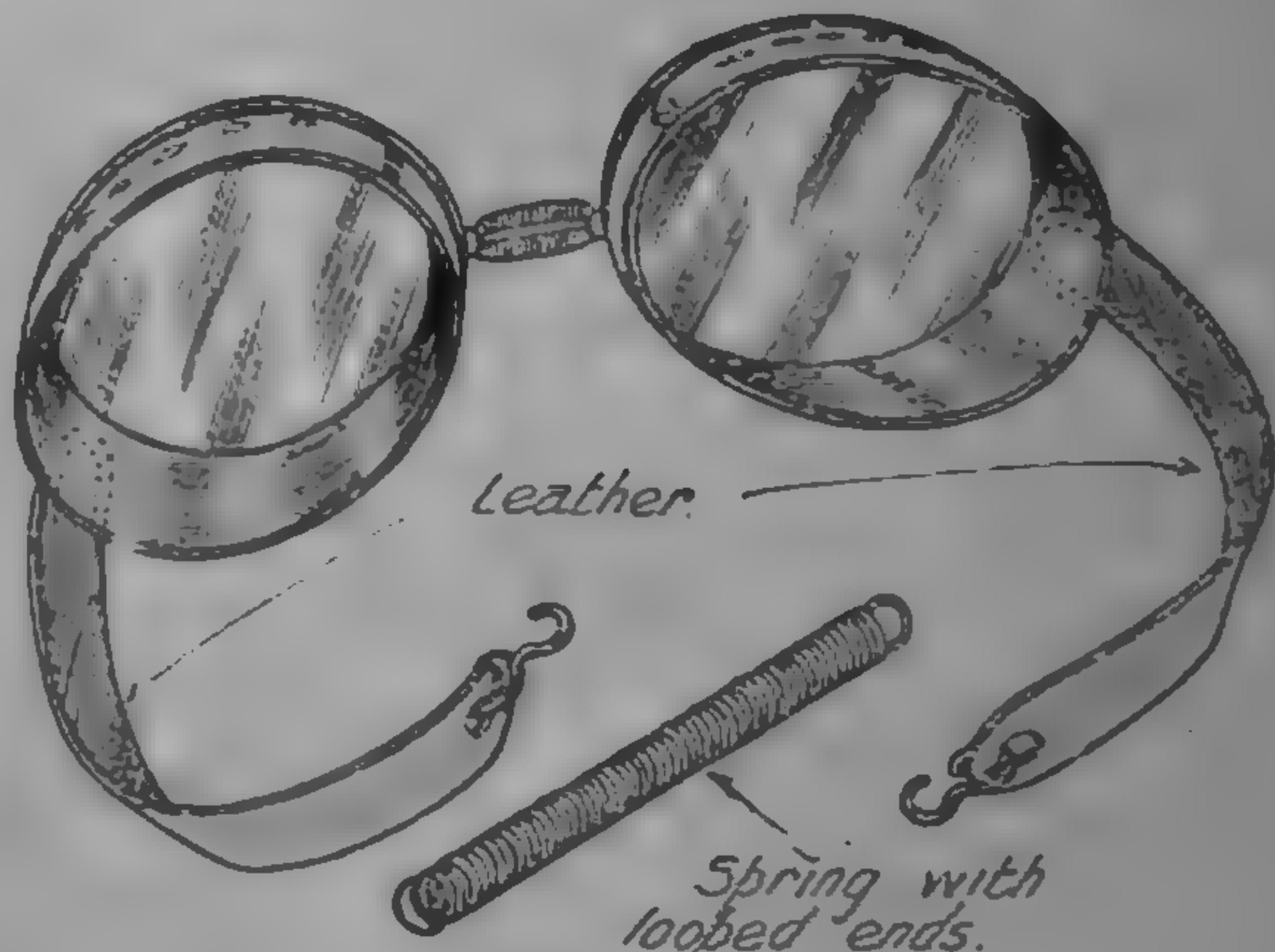


Illustration No. 6 — A goggle improvement.

strips should be obtained, stitched to the goggles, and fitted at their ends with suitable hooks. The necessary elasticity is provided by the ends being held together at the back of the cap by means of a long, light spring with looped ends.

M. Hitchcock, Cliftonville, Alton, Hants.

RUNNING ON PARAFFIN.

IN the last issue of Motor CYCLING a letter appeared from a correspondent throwing doubt on the possibility of using paraffin even when vaporizers of the Morgan and Silver types were employed. We, of course, have proved that our correspondent's remarks were quite inaccurate, but published his letter in order to ventilate both sides of the question. The Morgan Vaporizer Co. inform us that they have addressed the following letter to our correspondent:—

"Referring to your letter in Motor CYCLING, you have not purchased from us one of our Morgan vaporizers, and whatever you have used on your machine is not our vaporizer, and, therefore, it is difficult to see how you can say that you have fitted up your big single to run on paraffin fitted with a Morgan type valve cap and a Silver type induction pipe heater. If you had fitted the Morgan vaporizer, you would not have written a letter in the form you have done. We are willing to prove that all our statements are true and that our vaporizer will do everything we say it will. The reason you have failed is because you have fitted an inefficient heater and not one of our vaporizers. As to what our vaporizer will do, may we refer you to the article written by the Motor CYCLING expert which appears in the same issue as your letter, and a gentleman, moreover, who should know what he is talking about. We positively guarantee that our vaporizer will do all we claim for it, and, furthermore, this fact is being proved

daily by the very large number of motocyclists who have fitted the Morgan vaporizer. Your allegations that the statements are 'in plain English, lies,' cannot refer to an article which does vaporize the fuel. Our vaporizer has been running ever since the beginning of July, and anyone who has used the Morgan vaporizer will tell you that their experience does not coincide with yours. It is clear to us, from your experience, as stated in your letter, that you have not solved the difficulties which our vaporizer has overcome. We are willing and able to prove that, when running on paraffin with the Morgan vaporizer, you can restart on this heavy fuel after waiting for over half an hour, and this shows that the paraffin is being correctly vaporized."

In the course of an article upon the car industry after the war, a writer in the weekly Press says:—" . . . To-day Britain is engaged in laying down plant which, when it shall all be brought into operation, will produce more steel in a year than the whole of America did before the war. . . . The net result will be that we shall be capable of producing far more steel than we can use. So, for that matter, will France, America, and a number of other countries, though, of course, one makes allowance for the fact that during the first six months of the year there will be an abnormal demand for steel."

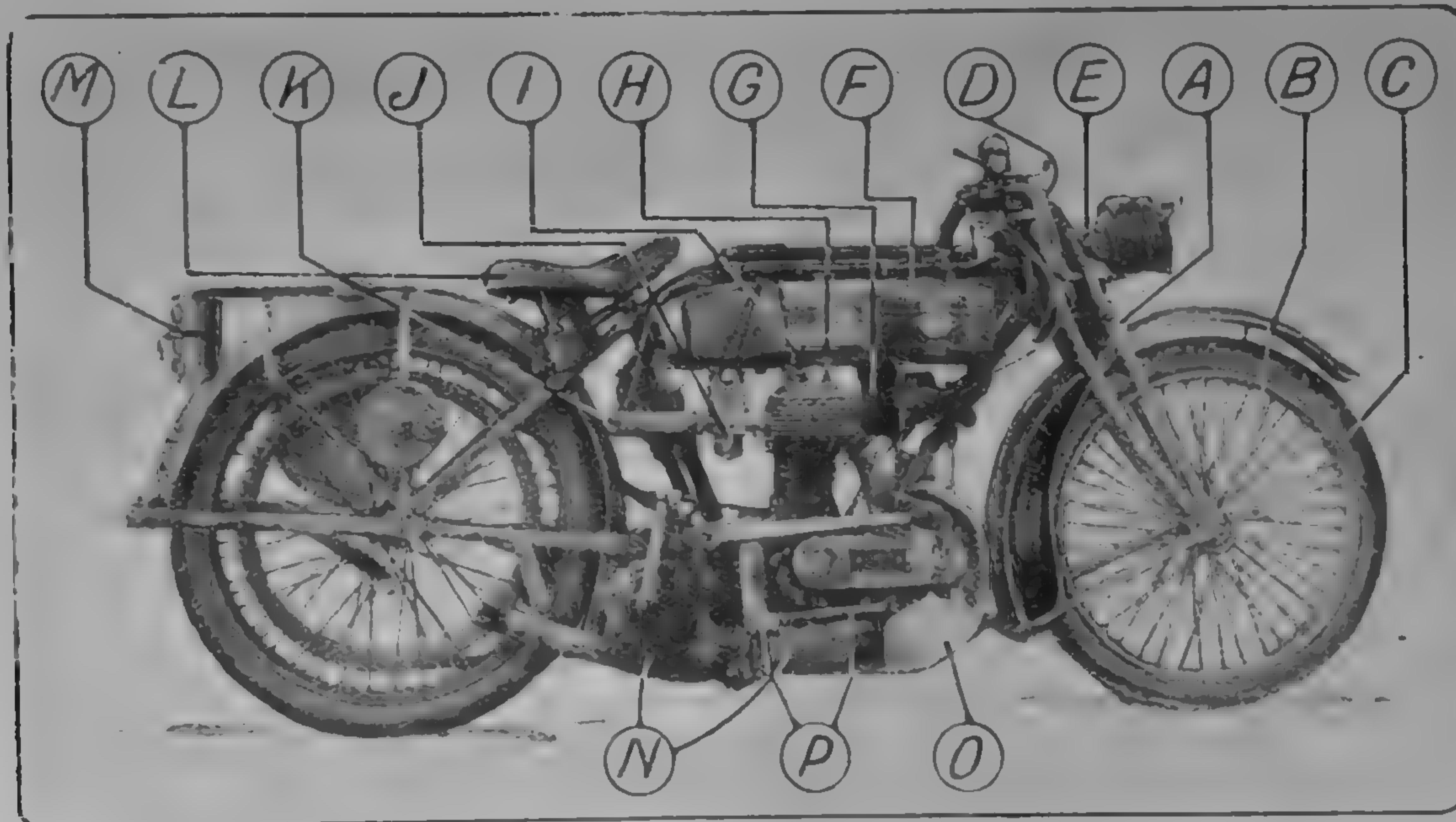
ALTERATIONS FROM STANDARD.

Over 25 months ago the writer of the accompanying article was one of the first members of the staff of "Motor Cycling" to leave for the Front. He, as will be seen from the following contribution, has carried out a series of extremely interesting modifications and alterations to his 4 h.p. Triumph.

I EXPECT that during the war you have been provided with many descriptions of alterations from standard that have been carried out by despatch riders in France to their machines, but I think that few can claim to have carried out so many "improvements" as those I have inflicted upon a 4 h.p. Triumph, of which I am lucky enough to be the possessor. I certainly think that you will find the equipment of this machine interesting. If reference is made to the illustration, you will see that the Triumph forks have been replaced (after a smash) by those of a Rudge (A), which happened to be lying idle at my depot. Special ball races had to be used, the lower top race being an external instead of an in-

nseful on the traffic-congested roads, is held to the front down tube by a substantial bracket immediately underneath the tank. It is held in addition by a small stay from the lower toolbag support, thus preventing all vibration and making the horn fitting absolutely rigid. A rather ingenious radiating cap is shown at H. This is constructed from perforated pennies mounted on a small length of round copper bar, which is screwed into a hole in the valve cap, the hole being countersunk and the end of the rod riveted over. I represents a Lodge single-point aeroplane plug, which has been in continuous use for nearly a year, and has given perfect results.

An extra air shutter (J) allows air to enter the car-



The 4 h.p. Triumph with its many additions.

ternal fit. You will also see that the front mudguard and stand (B) have also been substituted, whilst the front wheel (C) is also of Rudge make.

The handlebars (D) started life on a 2½ h.p. Douglas. They were heated up well with a blow-lamp and bent to the required shape. Horn grips with outward-turned ends were fitted in order to prevent the hands slipping off the bars. They give an extremely comfortable riding position and very complete control over the machine. The front brake bracket is used for carrying the headlamp (E). All the extra parts necessary were a $\frac{1}{8}$ in. bolt and a flat piece of steel bent to a right angle. Toolbags (F) were removed from their usual position on the carrier and arranged pannier fashion on either side of the forward end of the tank. They are attached to the front tank bracket by a flat piece of spring steel, which is placed under the block of rubber provided, so that the tank is insulated from shock and vibration, and held in position by tank bolts. A nut and bolt secure the base of the toolbag to the support. The bags are held at the top by a drilled section of a leaf of a sidecar spring.

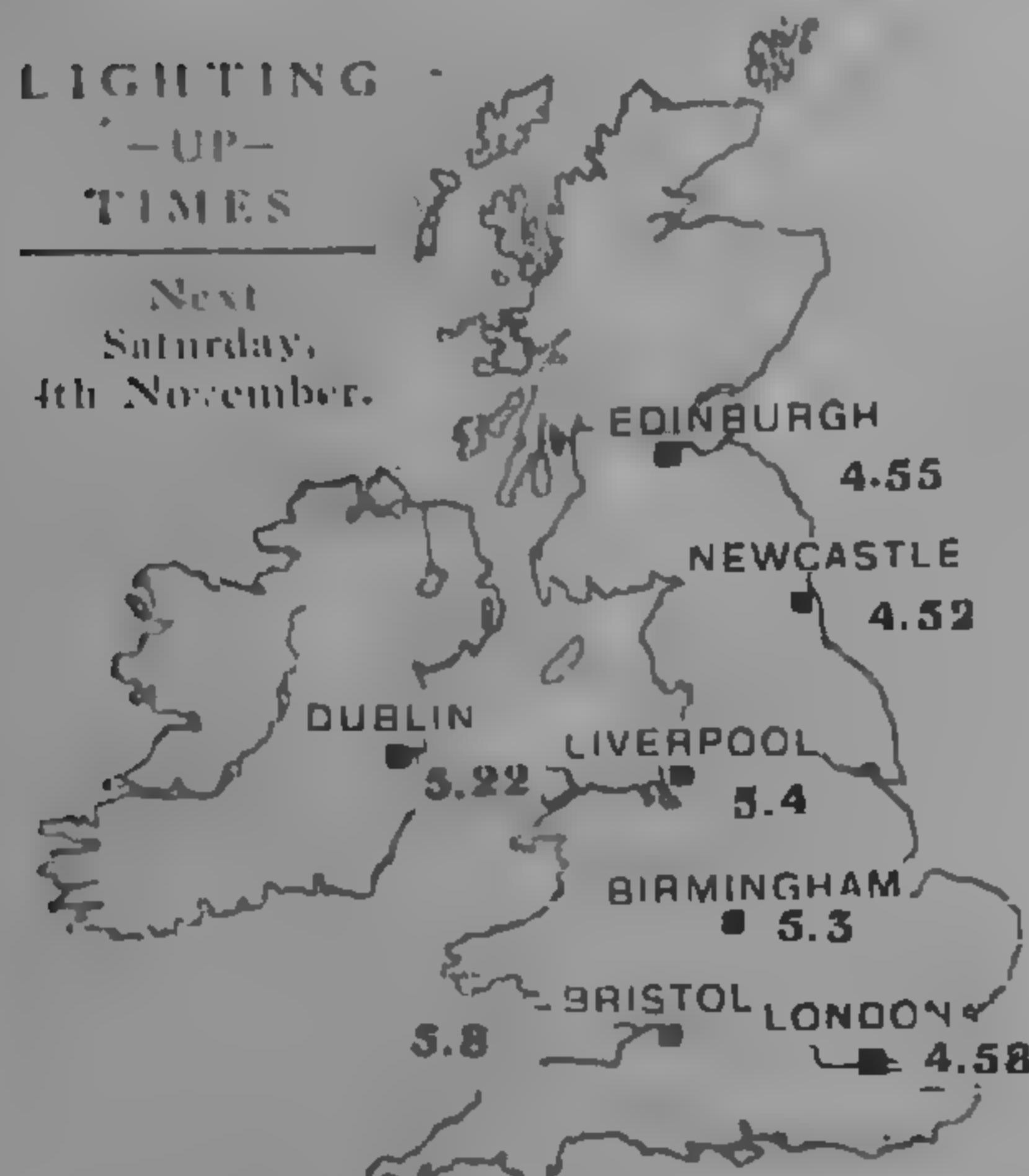
A Kluxon horn (G), which has proved extremely

buretter immediately below the throttle barrel. A Venturi tube is shown at K, the original gauze being kept in position in order to prevent the ingress of mud thrown up by the back wheel. The Brooks' B100 saddle (L) with which this machine is fitted gives splendid results in conjunction with the altered riding position. A set of substantial tyre gaiters (M) are carried, these gaiters being very necessary owing to the atrocious roads that are encountered.

The silencing arrangements have been considerably altered. A 4 h.p. Douglas silencer was obtained and adapted to fit the machine. The original tail pipe was cut out to allow the Triumph pipe to fit into the orifice when the silencer was reversed. The original inlet plate is now used as an exit plate, thus allowing a Rudge tail pipe to be fitted as shown.

A shield (O), 2 ft. in width, is carried on the front down tube, and completely protects the magneto and acts as an under-shield for the engine. It is attached to the footrests (P), which is carried on two broad strips of metal and a tubular stay. Although admittedly a makeshift, this kind of footrest is extremely strong and very comfortable.

MAXIME.



MOON.—In first quarter. Rises afternoon.
Full moon 9th November.

The Royal Lighting System.

The C.A.V. lighting system is employed on the cars of the King and Queen, Queen Alexandra, the Prince of Wales, the Emperor and Empress of Russia, the Dowager Empress of Russia, the King of Spain, the Emperor of Japan, and the Queen of Holland.

Puncture-proof Tyres.

A famous American rubber and tyre company have stated that they will shortly place on the market a puncture-proof tyre. The tyre, which will bear a mileage guarantee of 20,000 miles, is to be manufactured by a secret process, and 600 men will be engaged in its production. A large plant is being erected for the purpose.

B.S.A. War Fund.

A record sum is that subscribed by the employees of the B.S.A. Co., Ltd., towards various charities connected with the war. Between the 4th of September, 1914, and the 30th September, 1916, those who are "left behind" to do their bit in the B.S.A. factories subscribed no less than £15,781 for charitable purposes. Numbers of different benevolent funds and institutions have benefited by this magnificent generosity.

Two Lamps on Trams

The new lighting rules are being enforced by the police upon trams in certain districts of London. These are now forced to carry two white front lamps.

Relief for Sidecarists.

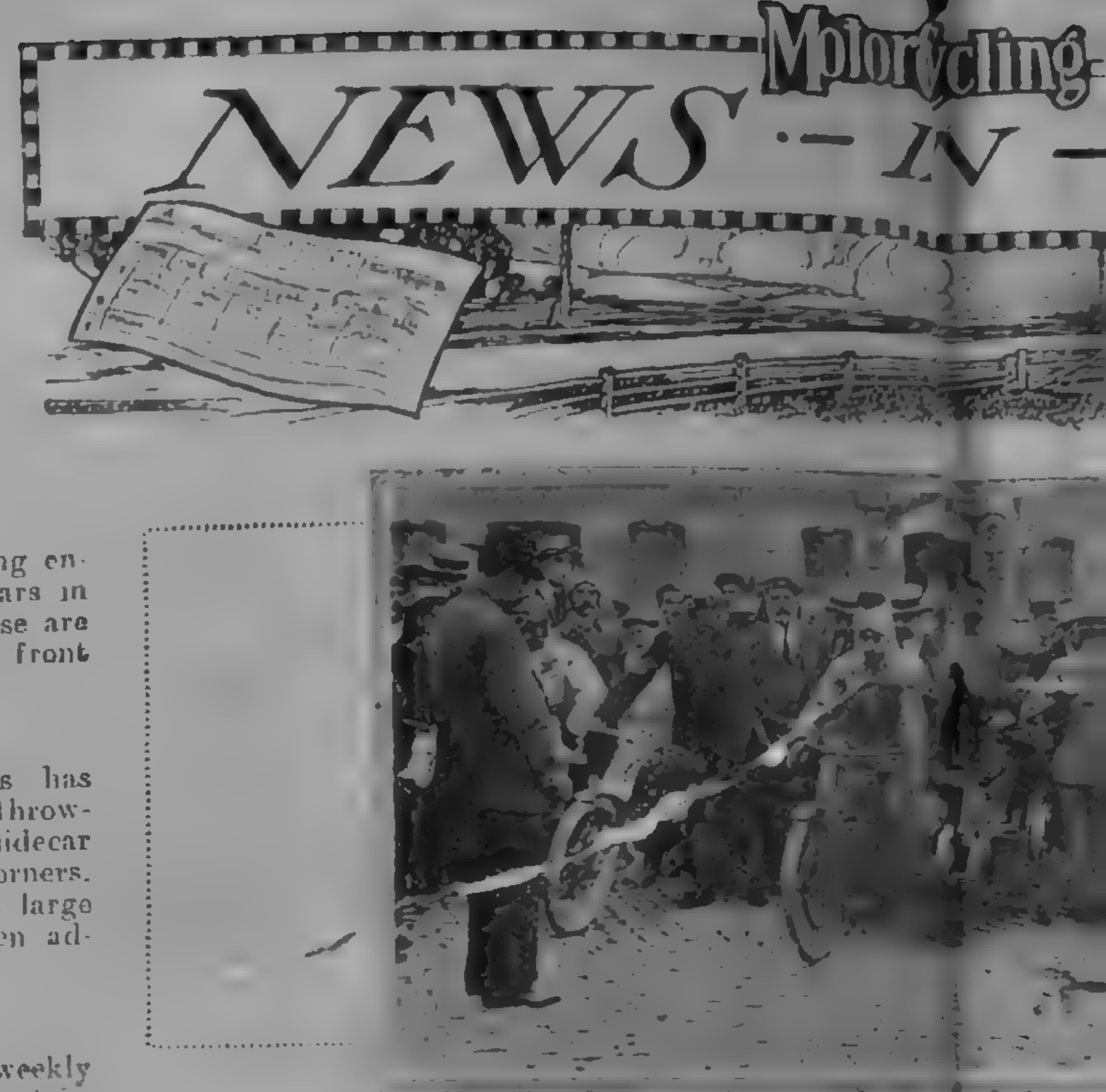
An inventor of South Wales has patented a mechanical device for throwing the weight off the engines of sidecar machines when they are turning corners. The inventor has been offered a large sum for his patent, but has been advised not to sell it at present.

Petrol Restrictions in Ulster.

A lady correspondent to the weekly Press points out that the petrol restrictions obtaining in Ulster are identical with those under which we are labouring here. Motoring in Ireland, she suggests, is largely indebted to petrol substitutes for its continuance.

Unlucky "Dust-up."

Two Newport motorists, one a car driver, the other a motorcyclist, were fined at Newport recently for driving in a dangerous manner. The motorcyclist



The winning team of a novel race organized in Cataluna. See accompanying picture.

Official "Substitute."

It is stated that the Government is making a petrol substitute of its own. Will this be available to private users, or will it be used for official purposes only?



The latest American novelty, a light four-wheeler propelled by the American edition of the Wall Auto-Wheel. These little scooter runabouts, selling for £25, are proving extremely popular in the States. ("Motorcycle," U.S.A.)

Damages for Motorcyclist.

Mr. H. W. Thornton, general manager of the Great Eastern Railway, has been obliged to pay damages to a motorcyclist, with whose machine his car collided in May. Plaintiff claimed £100 damages, but was awarded only £23.

pleaded, when stopped, that he was tired of the dust thrown up by the car in front of him, and determined to pass it. The result was a neck-and-neck race down a hill at between 30 and 35 m.p.h. Fines of 20s. and 40s. respectively were imposed.

From the headline of a contemporary.

"ANIMALS TO SHOW A LIGHT." This notwithstanding the fact that many of them are already provided with efficient horns.

A charming photograph of Miss F. the well-known actress, who scored the million. Mr. Lauride Greece



Vel race organized by the Moto Club of accompanying paragraph.

Funds Wanted.

An urgent appeal is being made by the president of the Cycle and Motor Trades Benevolent Fund for donations to meet the demands upon this fund,



Miss Fay Compton, actress, who scorns the peril of auto de Greece is at the helm.

which increase with every month of war. Communications should be addressed to the hon sec., Mr.

A. T. Wilson, 154, Clerkenwell Road, London, E.C.

Rudge-Whitworth Finance.

Record business transactions for the year are reported by Rudge-Whitworth directors, though the output of the concern's staple products has been, and remains, practically suspended. The usual accounts for the year cannot be presented, owing to the difficulty of making stock value estimates while Government munition contracts are in progress, and the uncertain taxation. The dividend is 10 per cent. free of tax.

Racing in Spain.

A novel team race was recently organized and carried out by the Moto Club of Cataluña. Each team consisted of a cyclecar, sidecar, and two motorcycles, and the course of 200 kiloms., over winding and hilly roads, had to be covered at an average speed of 25 k.p.h. The race was won by the Motosaeché team—Motosaeché motorcycles and a Dufé light car with M.A.G. engine. The second team was made up of a David cyclecar, a B.S.A. sidecar, and A.J.S. and Rover solo montts. Our correspondent, in sending us particulars of the event, states that the race was really between sidecars because these were the slowest of each team!

Petrol Committee Disclosures.

Some interesting facts about the Petrol Committee were disclosed in the House of Commons recently. The total number of persons employed upon the business of the committee was 288. The salaries, not reckoning war bonus and overtime, amount to £320 per week, and up to 30th September the total cost of salaries



Last week the Essex Volunteers were inspected by Field-Marshal Lord French. The illustration shows the motor squad which was congratulated on its efficiency.

and expenses was about £7000. The public will not be surprised to hear of these figures when they learn that part of the work of the committee was to attend to some 200,000 letters from persons complaining that their allotment was inadequate!

LEADING CONTENTS ON OTHER PAGES.

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British Sportsmen's Gift.

The British Sportsmen's Ambulance Fund has been enabled to present Rumania with five motor ambulances. Five have also been given to the Canadian troops.

To Scotch Readers.

Readers in Scotland are reminded that MOTOR CYCLING is now on sale all over this country on the morning of publication, namely, Tuesday in each week. Should readers have any difficulty in obtaining the paper at the proper time we shall be glad if they will communicate with the manager to that effect.

New Dunlop Depot.

A new London depot for Dunlop tyres has been secured in Albany Street, and this depot will now combine the selling departments which have hitherto been in Regent Street and Clerkenwell Road. The offices remain as before in Clerkenwell Road.

Fuel From Home Fields.

In the course of an interesting lecture upon the fuel problem delivered at the Royal Society recently, it was stated that we have sources of oil supply in Britain yet undeveloped. The shale de-

posits of Dorsetshire could supply quite a large quantity of oil. There are also oil deposits in Norfolk, which should repay development. The supply of shale or petroleum available from home fields, however, could only meet a very small proportion of the demand.

Folly as It Flies.

"Triumph, 4 h.p., late 19146; done under 800 miles; unscratched; absolutely genuine; any trial; guaranteed; £45." Reverie.

From the "Cycles and Motors Wanted" column "Liverpool Echo":—Petrol, 5 and 2/3 tons, state age, maker, particulars.

And we hope he may get it.

Levi's two-stroke, perfect condition, only ridden 100 miles, £24.—"The Liverpool Echo."

And we have always been assured that Joseph was the favoured member of the twelve!

Hobart, 4 h.p., twin, three-speed, clutch model, grey coachbuilt s.c., under-strung, like new, engine perfect, £40 or near offer, trial, owner passed for service.—"Leicester Daily Mercury."

More sensitive sidecars would, no doubt, be at a distinct disadvantage on the present very rough roads.

From the "Hollandsworth Daily News":—One hears of a man who rounded up 60 prisoners single-handed from the dug-outs, and of a corporal who bayoneted the two men with a machine-gun and dragged the gun away. Extraordinary accounts are given of the dug-outs themselves."

The writer himself, however, we feel, has eclipsed everything in the way of extraordinary accounts already.



A lady motorcyclist at the summit of the Stelvio Pass, 9040 ft. above sea level. The machine, it will be observed, is a 2½ h.p. Douglas.

Special Road Warning.

A resolution was recently considered by the County Council of Hants., asking for a speed limit of 10 miles per hour for the village of Liphook. The Council decided not to apply for a speed limit order, but to request the police authorities to prevent dangerous driving. The Automobile Association has been requested by the local council to assist in making this decision known to motorists passing through the village of Liphook.

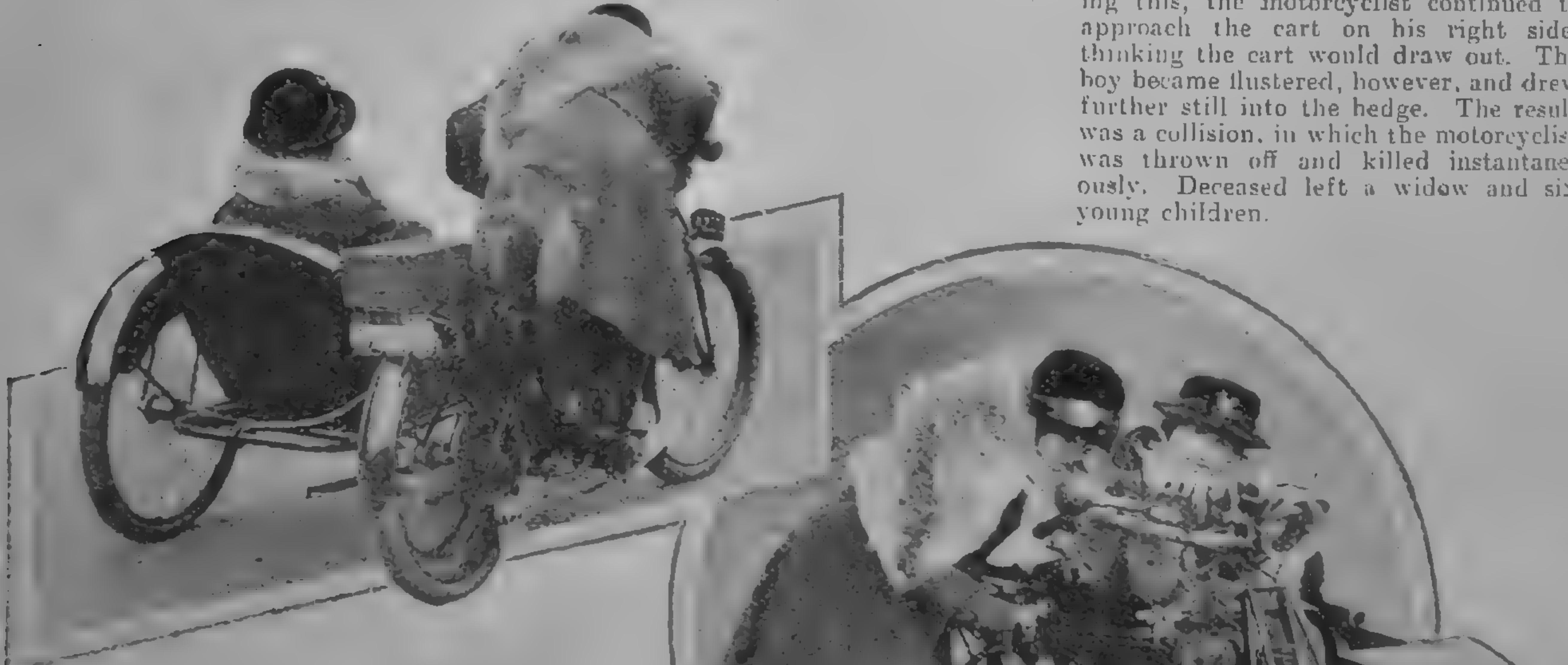
Starting from Cold.

One of numerous cold-weather hints, given in yesterday's issue of "The

Light Car and Cyclecar":—When using a rag to cover up the air intake to render starting easier in cold weather, soak it in petrol first. The petrol vapour drawn into the engine will greatly facilitate starting.

Fatality at Bristol.

A shocking accident occurred at Bristol recently, when a motorcyclist collided with a pony cart driven by a boy of ten. The boy had also his brother, aged four, in the cart, and admitted that at the time of the accident he was driving on the wrong side of the road. Seeing this, the motorcyclist continued to approach the cart on his right side, thinking the cart would draw out. The boy became flustered, however, and drew further still into the hedge. The result was a collision, in which the motorcyclist was thrown off and killed instantaneously. Deceased left a widow and six young children.



AN ATTRACTIVE SIDECARETTE WITH AN ATTRACTIVE DRIVER.

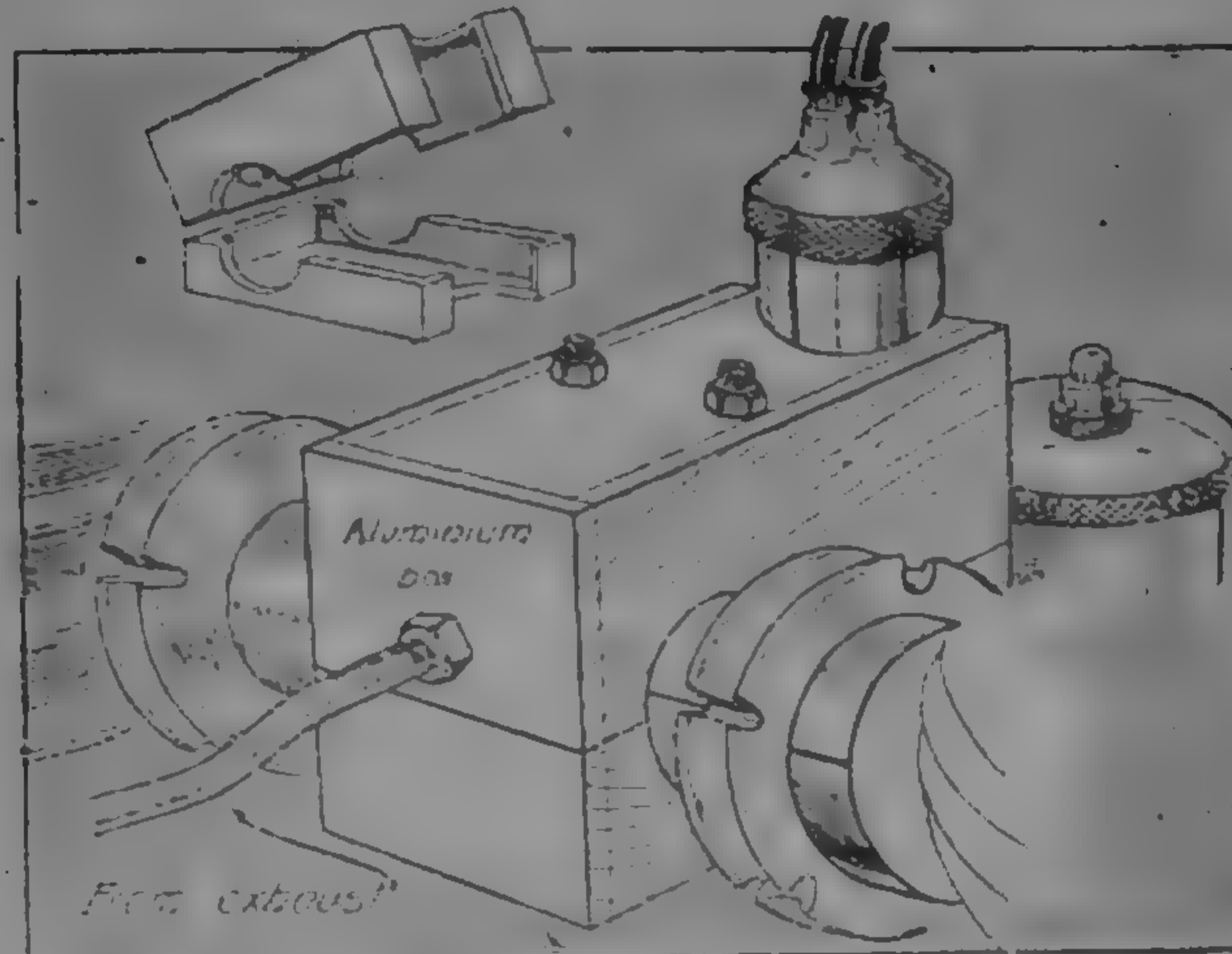
A keen motorcyclist, Miss Bella Robertson, of Putney Hill, is extremely enthusiastic with her latest machine, a 3½ h.p. Calthorpe and light sidecar. It will be noted that the low saddle position afforded by the dropped top tube makes the machine very suitable for feminine use. The running and hand start are both equally easy, as the illustrations depict.

NOVELTIES OF THE WEEK.

An Ingenious Exhaust-heated Fuel Vaporizer.

Yet another vaporizer has been brought to our notice by Mr. H. E. Horwood, of Killin, Perthshire. This, as will be seen, consists of an aluminium casting in two parts, bolted over and enclosing the "T" piece of the induction pipe of a twin-cylinder engine and extending to the rear so as to half enclose the carburettor barrel containing the throttle and air slides. Exhaust gases are led from the rear exhaust pipe by means of a $\frac{1}{2}$ -in.

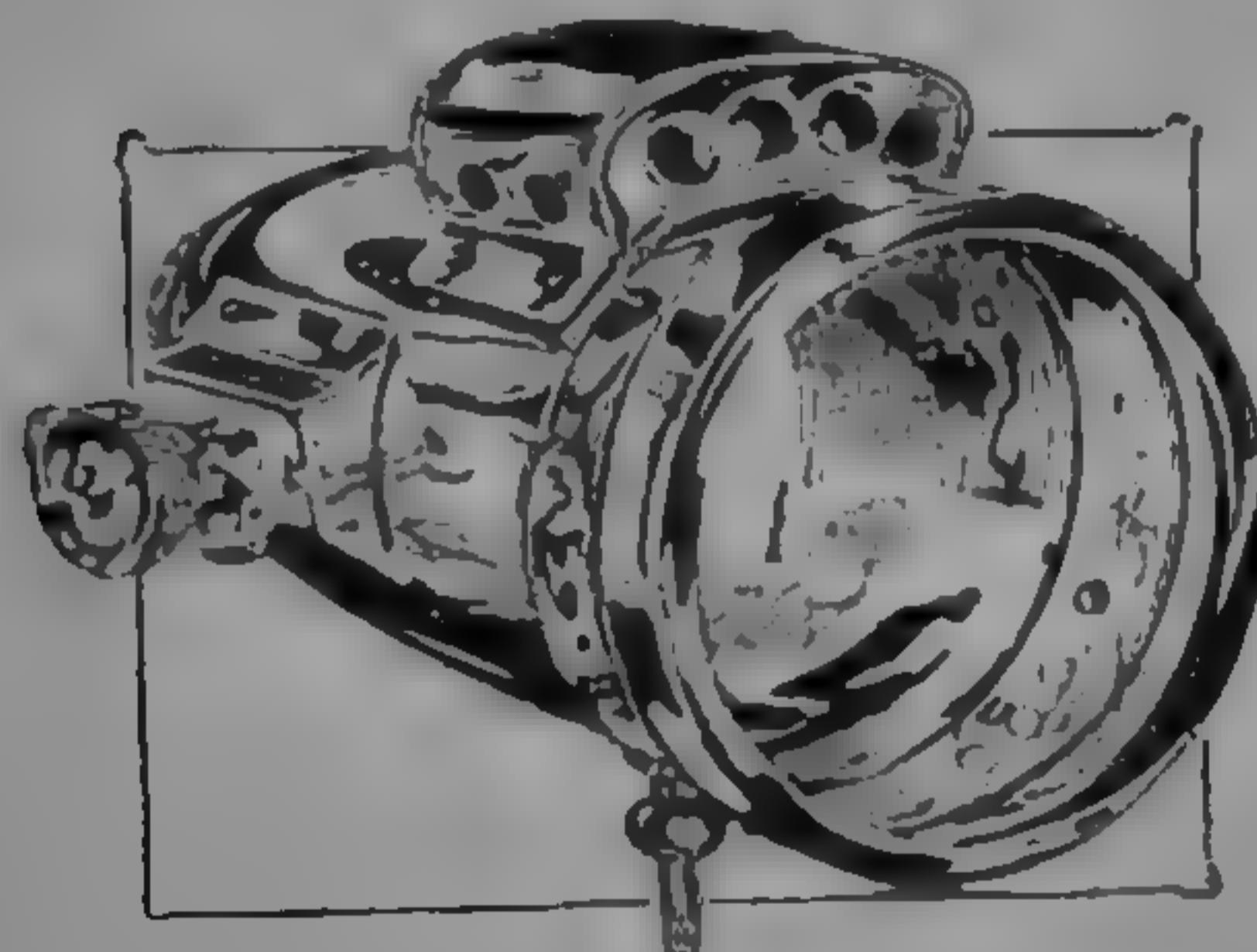
pipe, impinging directly upon the "T" piece of the induction pipe, passing out backwards to a small orifice forming the bottom part of the casting in contact with the throttle barrel. It will be seen that the entire carburettor and induction system are warmed very thoroughly, and perhaps, whilst not permitting the use of pure paraffin, would certainly assist the vaporization of the heaviest petrol substitute.



The Horwood vaporizer.

The New Lighting Regulations.

Now that it is rendered compulsory for every sidecarist to equip his machine with two front lamps, it is of special interest to note that the Service Co., of High Holborn, London, have a very complete range of suitable lamps. The model illustrated, finished in nickel plate, costs 10s., and has a very handsome appearance.



Amongst other interesting models are those provided with a drilled base plate suitable for bolting to the sidecar mudguard.

A New Bodywork Cleaner.

Motorcyclists who dislike a dirty sidecar body will appreciate Johnson's Cleaner, for removing dirt and stains, tar, etc., from coachwork. The cleaner, which is sold in 1s. 6d. tins, should be applied sparingly on a dampened piece of cheese-cloth or melton-cloth. It should then be rubbed off and the bodywork polished with Johnson's Wax, sold in 7d. tins. This cleaner can be obtained from Messrs. Taylor, Store Street, London, W.

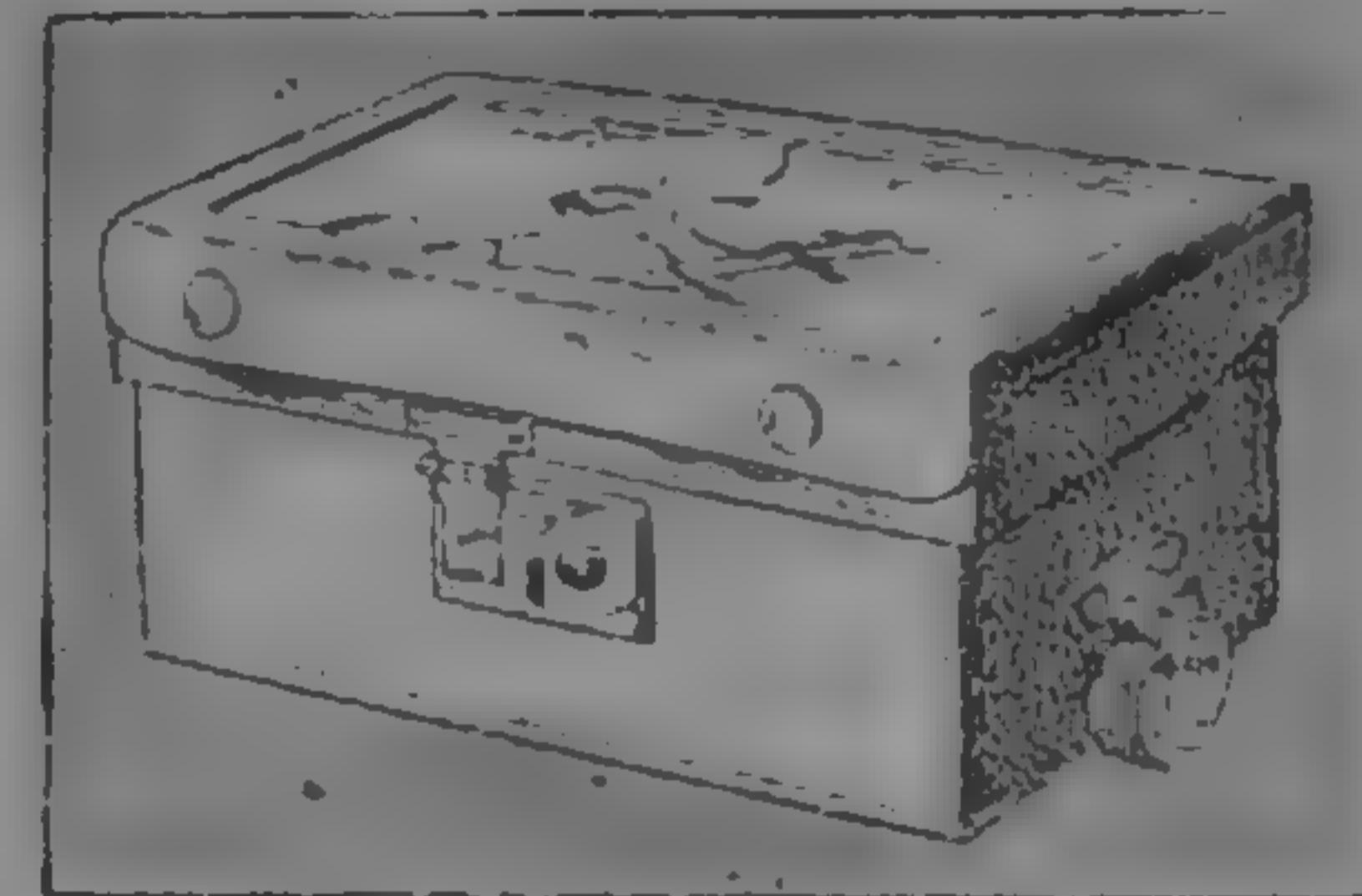
Place a definite order for
"MOTOR CYCLING"
with your newsagent.

An Anti-belt Slip Device.

Riders of small two-stroke machines have often encountered difficulty in overcoming belt slip in wet weather owing to the extremely small size of the engine pulley. In order to overcome this difficulty without having recourse to anti-belt-slip preparations, a reader, Mr. W. G. Ritchie, of 27, Little Victoria Street, Belfast, has invented an extremely ingenious arrangement whereby this belt slip can be reduced to a minimum. So simple is this device that we are requested not to illustrate it. We are assured it is none the less effective. Those interested can get into communication with Mr. Ritchie direct.

Handy Toolbag.

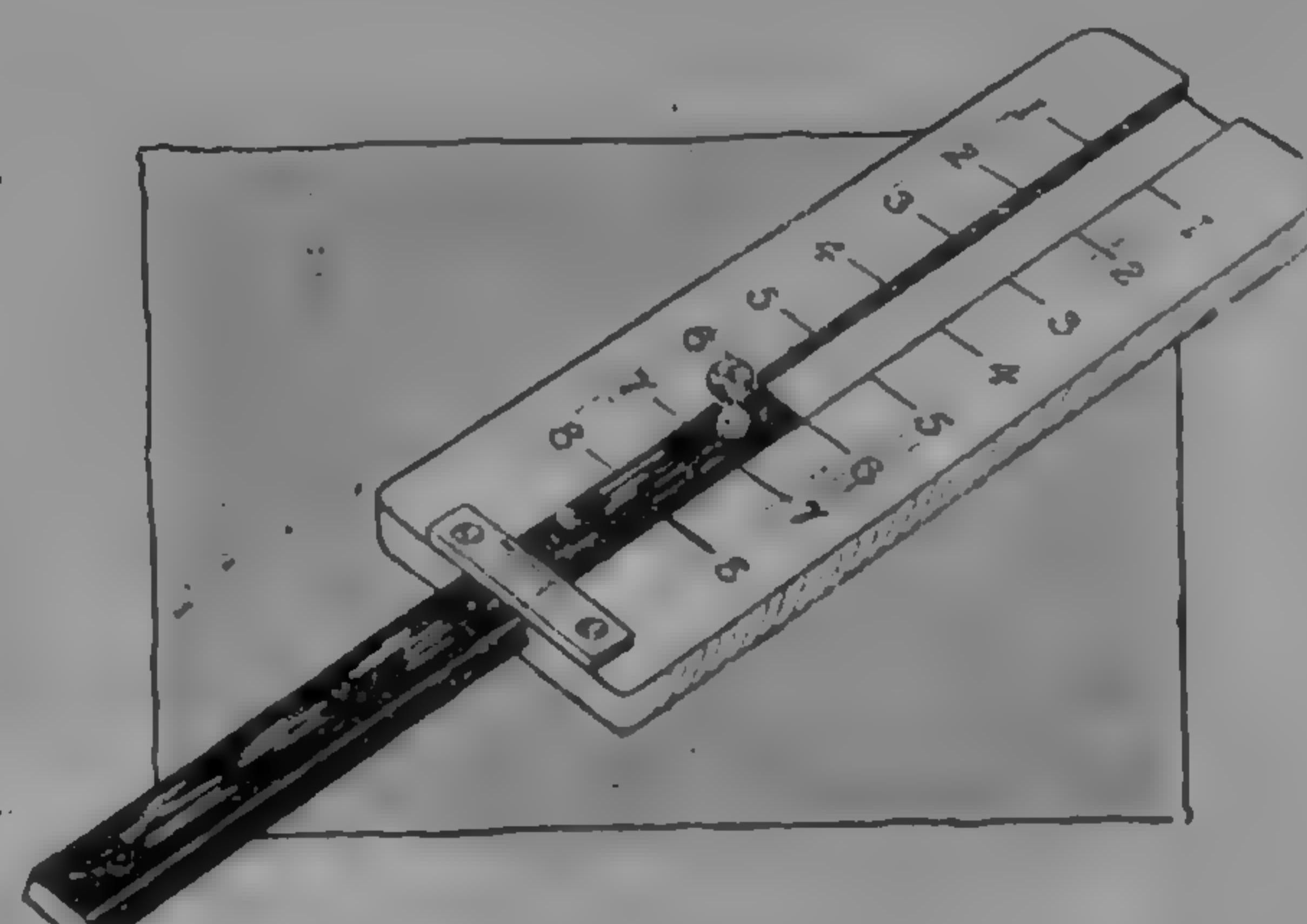
Another useful accessory emanating from the Service Co., of High Holborn. The bag can be clipped to the top tank



consists of a mica-covered tank toolbag, tube without the necessity of tank removal, two grip clips being provided. The top of the bag is constructed to accommodate a map, which can be clearly seen through the mica cover when travelling. The price is 10s. 6d.

A Handy Petrol Gauge.

A gauge which can be lettered out into one, two, three, four, etc., quarts. The boxwood guide is held against the edge of the filler cap, the ebony slide being pressed downwards until it touches the bottom of the tank. It is then withdrawn and petrol wetted "high-water mark" made to coincide with the bottom of the boxwood guide. The amount of fuel in the tank is then clearly indicated by means of the measure provided.



The Nunn petrol gauge.

The Editor's Correspondence

The Editor is not responsible for, neither does he necessarily agree with, the views taken by correspondents. Both sides of any topic are given equal publicity. A pen-name or initials can be given for publication, but the writer's full name and address must always be sent. All communications should be written on one side of the paper only.

Freemasonry of the Road.

Replying to the letter from "C.F." in MOTOR CYCLING of the 24th inst., the explanation is contained in the last paragraph. I for one have so often offered help and been met by a glassy stare or a stiff declining that I have given up offering voluntarily. Of course, I answer all signs and summonses, and if I am broken down and give a signal of distress I am sure to find someone who, like myself, will not pass by.

On the other hand, it is very annoying when getting tea ready at the roadside or awaiting the answer to a momentous question as to whether she will or not, to be hailed by a busy-body and asked "Are you all right, sir?"

EDWD. W. T. WARD.

Craven House, Kingsway, W.C.

In Search of the Ideal.

We have read with considerable interest your comprehensive article in the 12th September issue of MOTOR CYCLING, and were highly gratified by the selection by "Comfortinus" of the four-cylinder Henderson motor and frame as the power source of the ideal touring model. We rather frequently receive comments which are quite pleasing in their approval of the way we build Henderson motorcycles, but it is particularly gratifying to receive public endorsement in such an authoritative way. We shall endeavour to continue to deserve the approval of your correspondent by building Henderson motorcycles as good as we know how to make them, and by striving continually to learn ways in which to make the machine still better.

We note that in continuing the description of your ideal machine a three-speed gearbox and clutch of another make of high-grade American

machines are specified. Of course, the Henderson had no competition to offer regarding this particular feature at the time you wrote the article, as no three-speed transmission or gearbox was used in connection with our 1916 model. However, as the 1917 Henderson has a unit power plant with three-speed sliding-gear transmission housed in the rear of the motor base, and a very large-size multiple-disc clutch built into the flywheel and running in an oil bath, we believe, therefore, that our 1917 machine is considerably closer to the ideal.

HENDERSON MOTORCYCLE CO.,

P. J. BAILEY, Export Sales Manager.

Back Lockers for Sidecars.

When will the sidecar builders give us a sensible sidecar? One in which it is possible to get at the various accessories and keep one's luggage dry without having to disembark the long-suffering passenger on a wet and cold night while one searches for a spanner in a totally inadequate locker beneath the seat. I have before me catalogues of some of our finest sidecar combinations; quick-detachable wheels, spring wheel sidecar, hood, screen, etc.; but only two offer a back locker! Anyone who has tried such a sidecar would never go back to the old-fashioned kind; they are simply ludicrous, but still the sidecar manufacturers go on building them.

16, Sloane Street, S.W.

AUBREY HARRIS.

Promptness of the Petrol Committee.

The following may be of interest to readers who have not yet applied for their new petrol licence.

On the 11th October I posted my application for four gallons a month to the Petrol Committee, and, to my surprise, on the 13th October I received the licence. Whether this quick dispatch was due to the fact that I applied early I do not know; but it seems as if the committee were at last getting into working order.

ERIC E. HART.

1, Northampton Road, Croydon.

Starting by Means of Carbide.

I noticed in a recent issue of MOTOR CYCLING an article on "Warming the Float Chamber with Carbide," and the Editor's note as to connecting the gas to the induction pipe. May I relate to you my experience in the matter? For some weeks now (since the small petrol allowance has been troubling us) I have started up quite a number of times from cold paraffin, on a cold engine, $3\frac{1}{2}$ h.p. Humber, 1911 pattern, B. and B. carburettor, simply by turning the gas generator on and detaching the rubber feed tube to rear light, introducing same into the extra air port of the carburettor and closing down the air throttle sufficiently to hold the gas tube in position without cutting off the supply of gas. After a few explosions in the silencer the engine starts up and keeps running wonderfully. It does not require many yards running to be able to dispense with carbide gas altogether.

I have also started an 8 h.p. Zenith (B. and B. carburettor) in the same manner from cold.

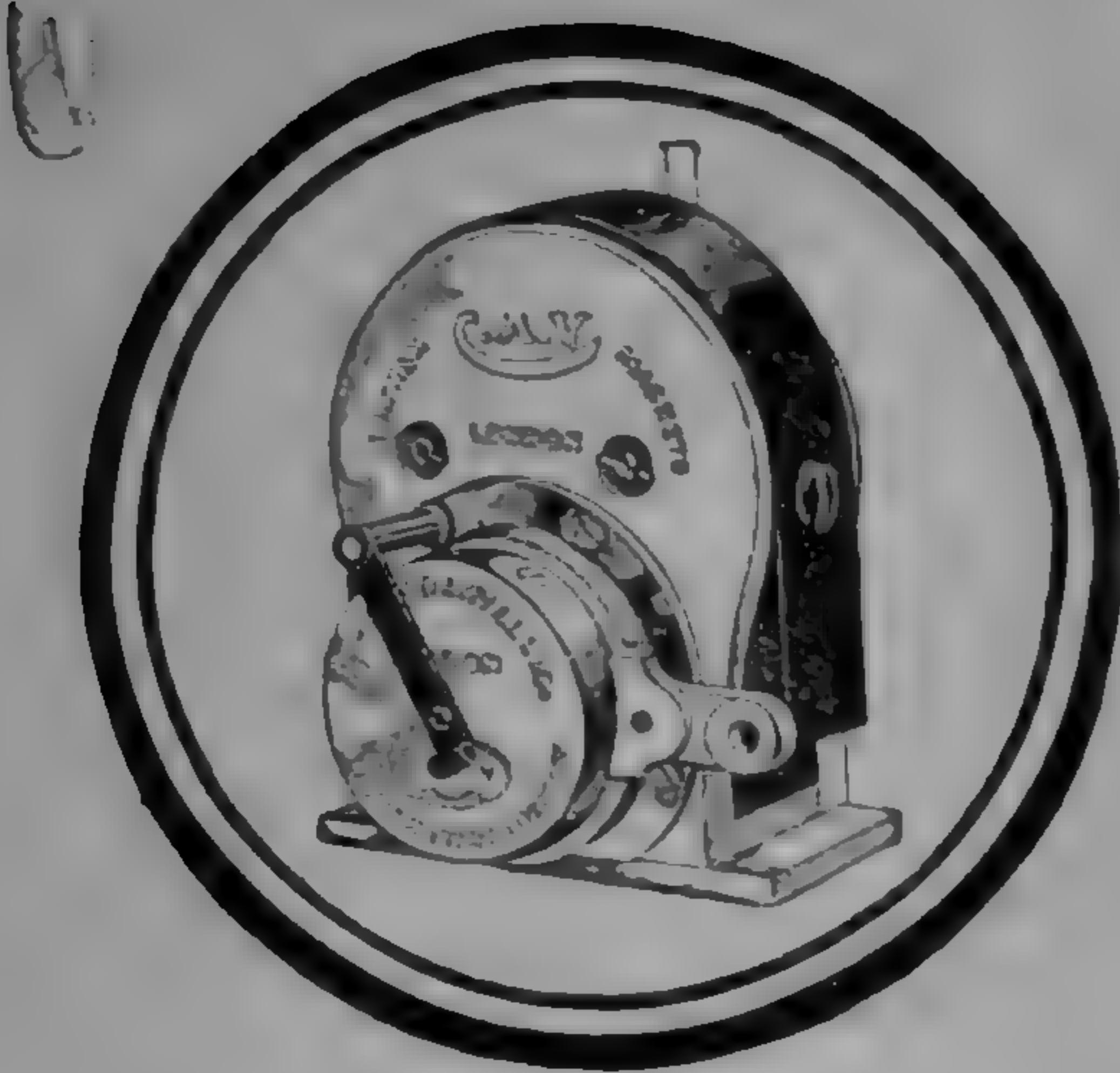
W. HEMMINGS.



Owing to the enormous number of munition factories that have sprung up in the Midlands, housing accommodation has become a matter of extreme difficulty. The above illustration shows part of a camp where the men are under canvas. The Clyno two-stroke proves extremely useful in keeping up the lines of communication with the nearest town—some miles distant.

C.A.V. Magnetos

BRITISH THROUGHOUT



PROVED by severe and extended tests to be incomparable for slow running, easy starting and consistent efficiency.

*Write for Art Folder "F"
and Spare Parts List.*

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16 BRADWICK PLACE
Telephone 2070
FORD CAR DEPOT—
21 LOTHIAN ROAD
Telephone 2070
Motor Cycle Department—
11111 LOTHIAN ROAD
Telephone 2070

Messrs. Palmer Cord Tyre Co. Ltd.,
6, Royal Exchange Sq.,
GLASGOW.

272 & 274 GREAT WESTERN ROAD,
GLASGOW. 11th Sept. 1916

Dear Sirs.—With regard to the 26 x 3 light car combination cover
No. C10573. I have much pleasure in informing you that up to the
time of taking this cover off it has covered on the rear wheel of
my 6 H.P. Enfield combination approximately 14,200 miles during
which time I have only experienced three punctures.
I have every confidence in recommending this cover for
the driving wheel of any side-car combination, as I have found it
always to be a steady and satisfactory tyre.

Yours faithfully,
D. S. Alexander.

All may not get
such mileage,
but this letter
proves how
careful treat-
ment adds to
the life of

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For effectively controlling all movements from the handle-bar. Made in various strengths and finishes.

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For Brakes, Clutch, Air Inlet, Magneto, etc. Controls—right or left hand, for one to three movements.

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Carburetors

The Light Car and Cyclecar

EVERY MONDAY, 1 D.

A most important article on
ANTI-FREEZING AGENTS,
with original tables and curves, showing
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The Light Car & Cyclecar,
Monday, 30th October.

Principal Contents.

Some Cold Weather Hints of General Interest.

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Knotty Points in Traffic Driving.
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A Magneto Electric Lighting Set.
Simple Lighting System without a Dynamo.

List of Average Second-hand Prices.
What Controls Second-hand Values. Effect of the Termination of the War. ("The Light Car and Cyclecar" is the recognised medium for the sale and purchase of second hand light cars and cyclecars, with a far greater number of private advertisements than any other medium).

Another Amusing Muddle.
Red Tapeism affronted at the Committee.

Romantic Stories of Mediaeval Inns.
Hostelries that go back beyond the 15th Century. Illustrated.

Converting an A.C. Sociable to all hand control.
Useful for soldiers who have lost the use of their lower limbs. Illustrated.

And many other topical features.

Offices of "The Light Car and Cyclecar,"
7-15, Rosebery Avenue, London, E.C.

Resurrecting an Old Machine.

What an amateur is able to do after reading and inwardly digesting the helpful articles and hints printed in your journal the following will illustrate.

I bought a damaged 1914 single-cylinder 3½ h.p. s.c. motorcycle of a well-known make. Owing to lack of mechanics the dealer was unable to give it attention. Not without a little fear I undertook to overhaul the machine. I re-read ~~very~~ carefully the article on dismantling a 3½ h.p. engine. Dismantling the engine from the frame and removing cylinder, I found that the piston was broken. I obtained a new one from the makers. The condition of the other parts of the engine was good; there was very little play at big-end of connecting rod; the newudgeon pin supplied with the new piston gave no up or down play to little-end. After reassembling engine, I found myself quite at sea with regard to the timing, having forgotten to mark the cam pinions. To one new to the job, the timing chart sent me by the makers was a clever idea: the embossed letters of the firm's name on the crankcase playing an important part. All I had to do was to mark the top of the belt pulley when top of stroke was reached. It was a simple matter afterwards, going by

chart, to time the inlet, exhaust and spark by aid of the letters.

The engine was not satisfied with this timing, however. Splutterings, misfiring and great bangs in the silencer proclaimed its anger. On referring to chart again, I found that although the openings were correct, the closing of the exhaust did not coincide with the closing on the chart. The difference was about 50 mm. following the contour of the belt pulley. I therefore paid attention to the closing, knowing the opening would look after itself. The sweet running of the engine rewarded me.

To make a finished job, I got the frame and tank re-enamelled, overhauled the wheels, polished up the electroplating, and took down and thoroughly cleaned the magneto. The result of all this is that I am now the possessor of a motorcycle, a first-rate goer, to all appearance new, and differing very little from a 1916 model.

Acting on your advice, by using a smaller jet and stopping air leaks, I increased the mileage from 40 to 65 m.p.g. I hope with further experimenting to better this.

Edinburgh.

"AMATEUR."

Motorcyclists' Squadron to Co-operate with N.M.V.

In reply to your request in MOTOR CYCLING of 17th October, it is proposed to form a squadron of motorcyclists, if a sufficient number of recruits can be obtained, to operate with the N.M.V. under the command of Major-General D. C. F. Macintyre, C.B., and I should be pleased to receive the names and addresses of motorcyclists wishing to join.

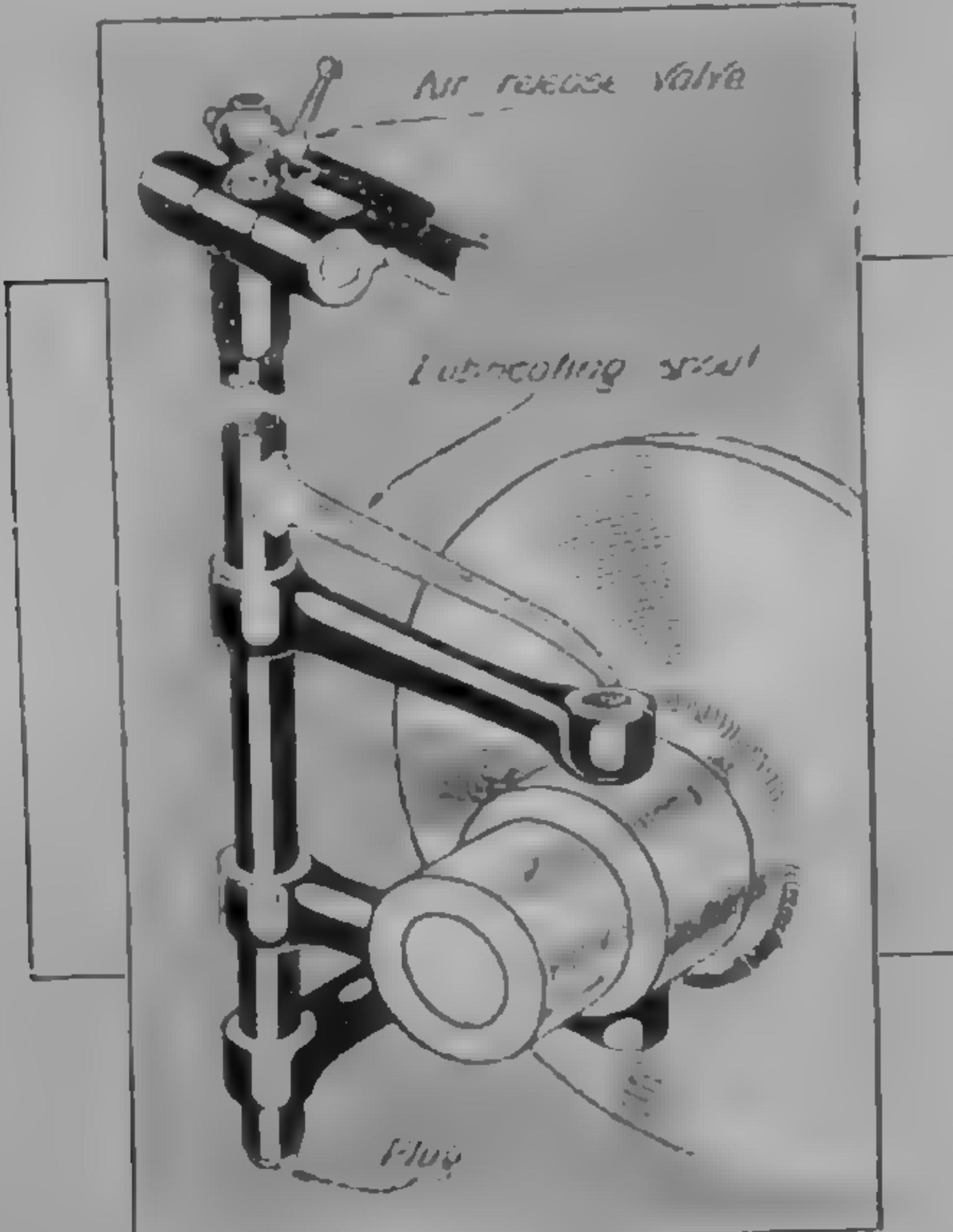
It is not necessary that the squadron should be confined to one district of London, as platoons could, no doubt, be arranged in the various districts.

Perhaps you will be good enough to make the necessary announcement in your valuable journal. G. E. COBLEY.

56, Harpenden Road, Southgate, Essex.

A Grado Gear Improvement.

It has occurred to me that the following alterations I have made to my Grado gear fitted to a 3½ h.p. Triumph might be of interest to other possessors of this gear. It gave every satisfaction with the exception that it became very hot for want of oil, not being provided with a ball-bearing thrust collar. In order to overcome this difficulty I plugged up the bottom of



An ingenious method of lubricating a Grado variable pulley.

the hollow control rod and fitted to the top an air-tight tap. From a convenient position I led a small diameter copper pipe to the operating collar on the pulley boss. When the pulley requires oil the tap at the top of the control rod can be turned on for a few moments, thus allowing sufficient oil to drip on to the pulley. I have obtained infinitely better results since I have carried out this modification.

Grado.

N.M.V. Vacancies for Motorcyclists.

Referring to the request in your issue of 17th October, for particulars of motor volunteer organizations, I beg to inform you that this squadron has vacancies for recruits in the motor and motorcycle sections. Full particulars may be had on application to either the Squadron Adjutant, A. C. Medcalf, Totteridge, Herts., or the Squadron Quartermaster, T. J. Demery, "Dovedale," Mill Hill, N.W.

H. J. CHAPMAN (for the Squadron Commander)
3rd (Mid) Hertfordshire Squadron,
N.M.V., Hertfordshire Corps

The Hare Incident Explained.

In a recent issue of MOTOR CYCLING you had a note on a "fascinated hare," and referred to same as a "phenomenon." Please allow me to say that neither of these descriptions apply.

I have many times, both day and night, chased a hare for a considerable distance, and have been certain of my quarry when it has done a lovely side skid and rolled over twice out of the way.

The explanation is this. The hare was sitting on the road (as they often do) till the car approached, and then darted off in front. As the eyes of a hare are so placed as to see as well behind as before, it simply runs in a straight course with its pursuer, looking behind all the time, till this becomes too dangerous to continue; then, by instinct, it doubles out of the way as described.

The last time I chased one was in September, on a Douglas, and that on a good stretch. I opened out and at 37 got just up to its tail, when over it went and escaped. Wm. TURNER.

West Hartlepool.

Running on Paraffin.

I hasten to write in reply to M. Hitchcock. His statement about carbon deposit shows there is something wrong with his arrangements, which accounts for the poor results.

I did a tour this summer of 1500 miles, half on paraffin, half on petrol or substitutes, such as Binks's fuel, Scotch Shale-spirit, etc., from London to Aberdeenshire, and back, spending some time in the north. Consumption:—83 m.p.g.; average speed, 19 to 20 m.p.h. (varied from 17 m.p.h. for 600 miles to 22 m.p.h. for a similar distance); load varied from 19 stone to 29 stone; machine, 537 c.c. single and sidecar. The carbon deposit was found to be less than with petrol in the same distance (1500 miles), and really did not urgently require removal. Further, the only alterations are:—Retarded magneto one tooth; hot air to carburettor air inlet only; induction pipe jacketed by piece of 1 3/2 in. copper sheet which also serves to conduct heat from cylinder to carburettor; gear lowered from 4½ to 1 to 5 to 1. Speed on level was a steady 30 m.p.h.; hill climbing good as long as the revolutions were kept up. The last statement shows the only disadvantage compared with petrol.

I cannot understand why people pay big prices for substitutes when common paraffin at 1s. 2d. per gallon does every bit as well, and is nearly as efficient as petrol.

W. R. DEUCHAR.

Gatooma, Great Missenden, Bucks.

German Trade Will Go.

I have read with interest a letter from Ian J. Fraser in your issue of the 10th inst. I would like to state that he appears to hold very ridiculous views. Surely he thinks that British manufacturers and the British public will have learnt enough to ban German-made goods after the war? As to a "league" being formed for the prohibition of German-made goods, I wonder if it would be a success! Surely no "league" will be necessary! I fully appreciate his joke re Bosch magnetos, but he cannot deny that only since the war have British manufacturers awakened to the fact that it is time a reliable British magneto was placed upon the market; also that for many years, and had there been no war would still be the same. The majority of British machines were fitted with Bosch magnetos. Why? Because there was not another to equal them. Mr. Fraser states that 110 m.p.g. on a $2\frac{1}{2}$ h.p. machine doing 45 m.p.h. is not bad. No, it is not bad, but it is very unlikely. On the same setting it is fairly easy to get 45 out of a modern $2\frac{1}{2}$ h.p., but it will not do 110 m.p.g. at the same time, and, again, a man who runs a big twin fitted with a foreign automatic carburettor and can only get 29 m.p.g., does

not deserve to own such a machine. Now for tyres. What is the matter with the well-known tyres of French manufacture? Personally, I obtained every satisfaction from them before the war.

Mr. Fraser also expresses a liking for a nice, solid $3\frac{1}{2}$ h.p. single; well, I have ridden a nice, solid 4 h.p. single fitted with Sturmey-Archer three-speed for a long time out here, and would be in the seventh heaven if I had a spring frame of substantial design, although even now I am "très content."

I am sorry to occupy so much of your valuable space, but I feel I must say something on the subject. Give credit where credit is due. We might remember that the finest, or one of the finest, cars on the British market is of German origin, and until the war the makers were practically a German firm.

In conclusion I had perhaps better say that I am not German, neither am I an Englishman with pro-German views, or I would either be interned or a conscientious objector.

Wishing your excellent paper every success.
B.E.F., France.

W. W. GILL.

Opinions From Australia.

Being a reader of your interesting journal MOTOR CYCLING, I noticed some time ago a paragraph referring to riders of motorcycles who have lost a limb. I had my left hand blown to pieces at the wrist through a gun bursting. I ride a $2\frac{1}{2}$ h.p. Douglas motorcycle to work in all weathers, a distance of 22 miles, every day. The only alteration I made was to change the exhaust lifter to the right handlebar and operate the two-speed gear lever with the remaining part of my arm. I have covered over 10,000 miles in 12 months; and I have nothing but praise for this machine, which I consider for general handiness and economy as a solo mount has few equals.

I notice a good deal of correspondence in the motor journals re British and American machines. I see that the American machines are increasing very rapidly. I am a strong advocate of the English article, which, for wearing qualities, cannot be approached by its American contemporary, but there are a few improvements which I and others would like to see included in the new English models, viz.:

1. Much larger tyres (about 3 in.), which are very necessary on a sidecar machine.
2. Better wearing spring forks.
3. Larger clearance between mudguards and tyre, so that

if a machine has small tyres a larger one may be fitted and still leave plenty of clearance.

4. A spring seat or something of that kind.

5. The mudguards of most machines are not efficient in wet weather, for when the front wheel goes into a mud hole the whole of the water is splashed on to the rider's boots, and I would suggest a little extension of the mudguard horizontally with the ground, fastened to the end of the mudguard.

The chain-cum-belt transmission is not a success here on sidecar machines, particularly the $3\frac{1}{2}$ h.p. single. The belt has to be kept very tight, or it will slip on steep grades, and I have seen a $3\frac{1}{2}$ h.p. single break a brand-new inch belt in two, and also new fasteners, when the belt was dead tight. When it was slightly slackened it would keep slipping till the rubber began to smoke after about one minute of letting the engine race, and then the engine would start pulling in a series of jerks as the belt began to grip here and there. This machine, I might add, had a drilled engine pulley, and belongs to an expert mechanic, and he says chain drive is the only solution.

Wishing your paper the success it deserves.

CLARENCE BOOBMAN.
Grafton, Clarence River, New South Wales.



A Rudge-Multi sidecar outfit outside a house with a history in Little Lawford, Warwickshire. The tale goes that Sir Theodosius Broughton, Bart., was here murdered and thrown into the moat, which at that time surrounded the mansion.

INFORMATION & ADVICE.

Questions Answered through the Paper.

RULES:—Questions on technical matters, advice in selection of a new machine, etc., will be answered in the next issue after receipt of the inquiry so far as possible. Letters or postcards must be marked "I. and A." in top left-hand corner. Questions must be numbered, and a copy kept for reference. Machines upon which an opinion is sought should be numbered. Replies can also be sent by post if a stamped addressed envelope for that purpose is enclosed. Routes and legal queries are answered only by post. Catalogues of motorcycles or accessories which will materially assist in the choice of a machine or its equipment, can be sent if two penny stamps are enclosed.

J.A. and V.A.S.—We are unaware of any vacancies for motorcyclists in H.M. Forces.

F.F.H.—All three machines you mention would be quite suitable; but perhaps for preference Nos. 2 and 3.

D.T.M.—You should apply immediately to the Petrol Control Committee, 19, Berkeley Street, London, W.

G.P.G.—We should imagine that the 2½ h.p. Poco engine Excelsior is about the most powerful two-stroke motorcycle at present on the market.

A.W.—Obtain either a Philipson pulley from Messrs. Philipson and Co., Engineers, Astley Bridge, Bolton, or a Bradbury engine-shaft two-speed gear.

W.S.—As apparently you do not wish to exceed an outlay of more than £15 to £20, it is impossible for you to obtain a machine powerful enough to propel a light sidecar.

E.T.—We are unable to give you any definite advice in regard to the purchase of second-hand machines, owing to the fact that these differ so greatly in condition. Speaking generally, however, a machine with fixed gear is not suitable for sidecar work.

P.M.O.—(1) The use of the Morgan vaporizer when petrol is being employed would certainly not be dangerous; but we are inclined to think that the same results could not be obtained with petrol when it was heated up as it would be if this device was in use.

D.R.—When of the unplanned variety, they should be pressed out in a vice.

G.D.—If the policy is comprehensive, we do not think £7 10s. an excessive premium.

A.P.—You had better place your order with Messrs. Harley-Davidson immediately. You will get delivery in the early spring.

W.A.B.—At the present time, the only auxiliary motor attachment available is the Auto Wheel, obtainable from Messrs. Auto-Wheel, Ltd., Russell Road, Kensington, London, W.

J.E.N.—If you have not used up the quantity of petrol allowed you on your present licence, you will be able to apply for the amount unused when you again put your machine in commission.

E.S.—(1) We expect that it might be possible to get a spark at the plug points when the platinum studs have disappeared, but it would be a very feeble affair. (2) Retarded ignition. (3) Do. (4) Yes.

A.M.—You cannot obtain a new 3½ h.p. machine and sidecar for £40, and as second-hand machines vary so greatly in condition, we can only advise you to place yourself in the hands of a dealer of repute.

C.M.—(1) We have no knowledge of the decompressor you mention. (2) Certainly. "Oil Dag" does not harm the engine, and with its use it is possible to cut down the supply of oil somewhat. We expect that you are using too much oil, and this is the cause of the piston rings gumming up.

J.T.S.—For your particular purpose we should advise you to obtain the New Imperial with kick-starter and clutch.

F.M.—If the sparking plug of your Auto-Wheel soots up, it is very obvious that you are giving a too generous oil supply. This can be easily cut down by means of the oil regulator.

O.C.—We should certainly advise you to obtain Motor CYCLING direct from these offices. You will then get it delivered on the Tuesday. We have forwarded you our subscription rates.

J.B.—Tool steel would be of no use for magnets. It must be tungsten steel, made specially for the purpose, known in the trade as magnet steel, and this can be got from G. P. Wall and Co., Magneto Works, Guelph.

M.W.—We cannot understand your queries. It is necessary for a constant supply of oil to be fed to the engine. The drip should be at the rate of about 50 to 60 a minute. Presuming that you mean lifting the exhaust valve, the answer is in the negative.

R.C.H.—It is, of course, quite impossible for us to publish the names and addresses of the senders of the postcards we receive, considering that there are nearly 1500 competitors, and as there is no entry fee this request strikes us as somewhat peculiar.

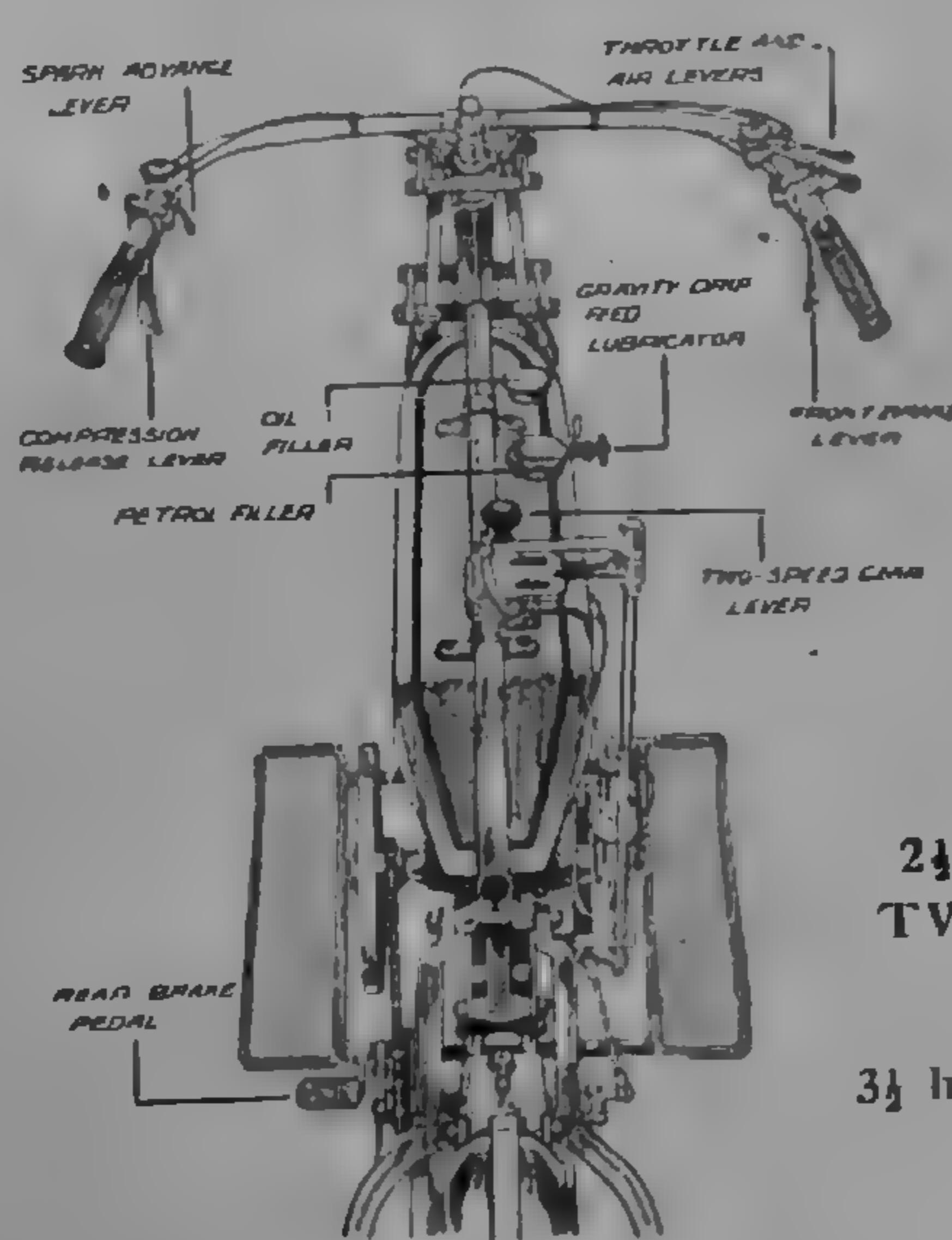
E.A.P.—If you can get 53 m.p.h. from your New Imperial, we certainly should not advise you to interfere with the machine. You have evidently got hold of an excellent engine. So long as you do not unduly race the engine on low gear, you need not fear barmy it.

C.A.R.—If the police can prove that you have ridden the machine, you are liable to the full tax and the usual half-guinea fine. It is not necessary for them to have stopped you, as the inspector would be able to get a conviction on oath to the effect that he had seen you on the machine.

B.B.S.—(1) We should say that the trouble is due to under-lubrication. The entire lubricating system must be dismantled and cleaned. When travelling at fairly fast speeds, the drip should be fast but not a continuous stream. (2) Ordinary engine oil is the best lubricant for two-speed gearboxes.

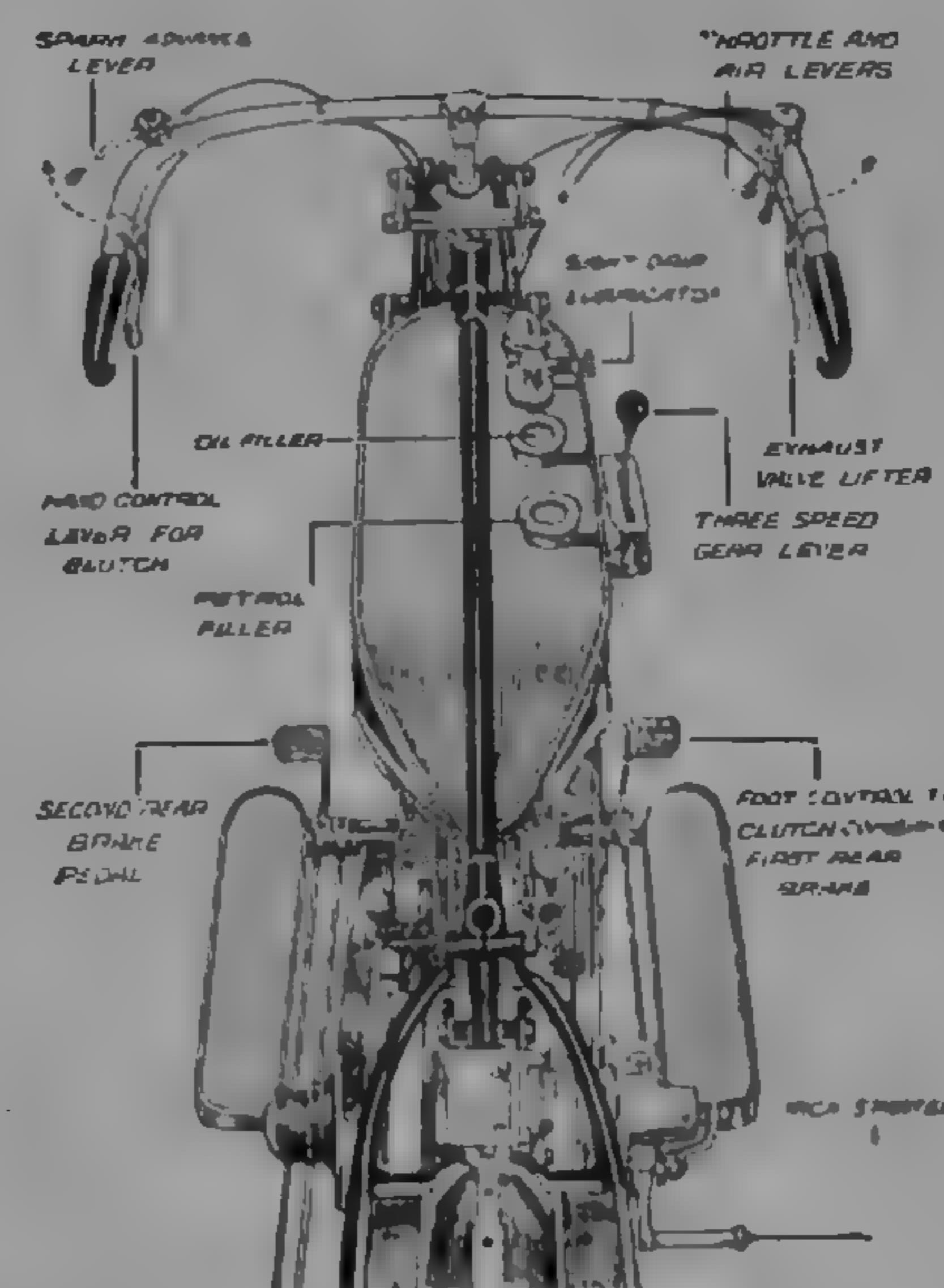
F.S.—It appears that the machine requires a thorough overhaul. The cylinders should be detached and the pistons, cylinders and ports cleaned of carbon. The silencer should also be cleaned out, especially the tail pipe. The radiators should be flushed through. In re-assembling the engine, a complete set of new washers should be provided. You will find a big improvement by fitting the special Binks Scott carburetter.

CONTROL OF BRITISH MOTORCYCLES.—XIV.



Left:
2½ h.p. IXION
TWO-STROKE.

Right:
3½ h.p. PREMIER.



31st October, 1910.

W.G.—The address you require is as follows:—
The Mabon Motor Works, Woodside Gardens,
Bruce Grove, Tottenham, N.

A.G.—(1) Yes. You will have to pay the tax on the amount of petrol that is allotted to you at the rate of 6d. per gallon. (2) We do not think that under these conditions it will be necessary to notify any authority.

G.P.—Your best plan would be to have the cylinders reground and new pistons fitted. This can be done by Messrs. Barrimor, Ltd., 10, Poland Street, W. If the gudgeon pins are fitted properly, scoring will not happen again.

C.J.J.—Certainly the frame must be straightened at once. In all probability the local repairers will be able to carry out the work, as it can be sprung back into position again. It is, however, a matter of close inspection as to whether this is possible or not.

C.L.P.—(1) There is no device actually marketed whereby you can drive your 3 h.p. Enfield from the sidecar attached. (2) Such an arrangement could be fitted up by a practical mechanic, and, as such, would be quite satisfactory. (3) Yes. (4) This, of course, depends upon the alterations. There should not be undue difficulty.

E.L.—Generally, the cause of engine accelerating when the exhaust valve is lifted very slightly is due to the fact that the valve has an insufficient lift. It should be remembered that the exhaust valve should open from 10 mm. to 15 mm. from the bottom of the firing stroke and should not close until the piston is about to start on the induction stroke.

F.T.—The fitting of a clutch will not necessarily make the machine easier to start, unless, of course, you are prepared to jack it up on the stand, start up the engine, hold the clutch out, put the engine off the stand, and then start up, which at its best will be a very difficult matter with the high gear necessarily employed. On the whole, we are inclined to advise you to let well alone.

R.C.H.—(1) Your old licence, if not used up, is not available for November. In other words, if you have only purchased 2 gallons of your allotted 6, you will be able to purchase 2 more gallons in November and 2 more in December. (2) The Babcock by-pass is manufactured by F. Babcock, 110, Woodville Road, Thornton Heath. It would be quite satisfactory on a Senspray.

W.F.S.—Apparently the ignition is slightly retarded. For speed work, you can give a 10 mm. advance. In other words, the platinum points of the magneto can start to open when the piston is within 10 mm. from the top of the compression stroke. We presume that the cams are not worn and that the valves are getting their proper lift. This is a point well worth checking. You should also write to the Rudge Co., Coventry, for their excellent little booklet entitled "Rudge Winkles."

A.A.—Some severe derangement has taken place with regard to the valve-timing mechanism. The valves are not being lifted to their proper amount. The inlet valve is opened properly, but should not close until the piston has travelled 10 mm. on the compression stroke. The exhaust valve should open when the piston is within 15 mm. from the bottom of the firing stroke, and should not close until the inlet valve starts to open. Rectify these matters, and you will regain the lost speed.

F.W.A.—(1) When running fast the drip from the lubricator should be just short of a continuous stream. (2) We expect that you have an A.M.A.C. carburettor fitted. When the throttle is fully opened it is necessary to close down the air lever. The carburettor is quite in order. (3) If you can smell no paraffin from the exhaust, apparently it is becoming properly vaporized. We should advise you, however, to fit up a gauze cone in the inlet pipe. (4) The address you require is the Villiers Engineering Co., Ltd., Bloxwich, Wolverhampton.

W.K.—It is impossible for us to give definite advice with regard to the purchase of second-hand machines, owing to the fact that these differ so greatly in condition. Presuming, however, the three models are in good condition, the answers to your queries are:—(1) Yes. The over-head inlet valve does not give trouble. (2) The Zenith tuned up properly is not difficult to start. With the initial push a comparatively high gear ratio should be employed. Immediately the engine goes the gear can be lowered by two rapid turns of the gear lever. (3) The kick-starting device you mention is not particularly easy to operate. You would get the best results from the Zenith.

D.H.—The illustrations in our competition will represent parts of machines which are at the present time on the British market.

C.W.E.—(1) For solo work we should advise the chain-cum-beetle; but for sidecar work we should advise all-chain. (2) No; certainly not. The Norton would take a sidecar anywhere. (3) No, this machine is not suitable for sidecar work.

C.H.H.—Your remarks with regard to the appearance of oilskins are certainly correct, and we should imagine that your best plan would be to send for the catalogues of the Service Co., High Holborn, London, W.C., wherein you would find clothes suitable for a doctor's use.

W.T.—If you can obtain a 5.7 h.p. F.N., this will make a really excellent sidecar combination. The construction is first-class throughout. The smaller models with the automatic inlet valves are somewhat overpowered for serious sidecar work; but you will find you will be able to climb quite appreciable gradients.

H.W.—We have carried out a successful test with the Grado pulley when fitted to a 2½ h.p. machine. It seems, therefore, that there is no reason—should the mainshaft of your engine be suitable for accommodating the gear, which we are inclined to doubt—that it should not prove successful on your machine.

E.H.—(1) The blowback is caused through incomplete or very slow combustion of the previous charge. Consequently, when the second thin mixture starts to pass the inlet valve, it is in turn fired. (2) The rear lamp should be provided with a tube which will enable you to provide the correct supply of gas. In these days of restricted lights you can afford to fit a much smaller burner to the headlamp, thus affording a steady supply of gas to the rear light.

PAPER SUPPLIES REDUCED.

A reduction of the quantity of paper and paper-making materials of 50 per cent means waste must be avoided. Readers are again asked, most emphatically, to order "Motor Cycling" to be reserved for, or delivered to, them. All that is necessary is to say to a newsagent: "Please reserve me a copy of 'Motor Cycling' each week," or fill in the form appearing amongst the advertisements and hand it to a newsagent or bookstall.

Anxious.—(1) No; there should be no spring to disengage the clutch pedal when the foot is removed from it. On the contrary, the clutch spring presses the clutch home. (2) When engaging the clutch the foot should be released very gradually. (3) Quite usual, but we presume that you lubricate the gearbox freely. (4) The ignition may be retarded. It would be advisable to check the ignition point. The platinum points should break when the piston is within 1 mm. from the top of the compression stroke.

E.G.W.—(1) Overheating is often caused through back-pressure and a dirty engine. The ignition point is on the fast side. If the engine does not knock, it would not be advisable to alter it. We expect that you have not measured it accurately. (2) No provision is made for oiling the U.I. magneto. It will run for thousands of miles without attention, when a little special grease on the bearings is sufficient. (3) Owing to the fact that lubricators differ, it is impossible to judge the amount of oil by the amount of opening given to the regulating needle valve. The drip should be fixed without being a continuous stream.

S.H.—We have not had any previous complaints with regard to the Connaught flywheel getting loose. Once however, the flywheel has become loose it is very necessary to have the mainshaft and taper of the flywheel reground to correct diameter. When fitting, the locknut must be jarred up with an open-ended spanner and heavy hammer. With regard to the pre-ignition, we expect that this is due to too far advanced ignition. The point should be checked. On the other hand, too weak a mixture would cause this. Perhaps the carburettor requires cleaning out and the level slightly raised. You might experiment in the first place with a larger jet.

T.W. We should advise you to write to The Palmer Tyre, Ltd., 119-123, Shaftesbury Avenue, London, W.C., for their booklet. You will find all the information you require in this.

T.G.—(1) We know of no carburettor known as the C.A.V. In all probability you are confusing this with the well-known magneto. (2) In the latter case, certainly Messrs. C. A. Vandervell are a British firm and of very high standing.

P.C.T.—The 7-9 h.p. engine is, of course, the fastest, and is more suitable as a sidecar machine than for solo work. The 2½ h.p. Douglas makes an ideal solo mount, but it is not mainly suitable for the attachment of a sidecar.

J.C.—You would find Coats, made by the County Chemical Co., Ltd., of Chemico Works, Bradford Street, Birmingham, very suitable for your machine. At the present time you would, of course, obtain the winter grade. The standard Lodge four-point plug would give the best results.

W.W.M.—(1) You should obtain the numbers from the clerk to the council of your county town. (2) You must apply to the Petrol Control Committee, of 19, Berkeley Street, London, W. (3) You can obtain spare parts from Messrs. F.N. (England), Ltd., Kimberley Road, Willenhall. Incidentally, we should like to point out that the envelope containing your queries was unstamped.

K.G.—(1) The manufacturers of the 3½ h.p. horizontal Brough do not recommend the machine for sidecar work. (2) Certainly; this would be far more suitable. The latest models are really excellent. (3) We regret that we have not much information on this point. If you were to obtain Messrs. Grose and the Service Co.'s lists, you would see various devices illustrated therein.

M.S.—As you cannot get the engine to fire even although you inject petrol into the cylinder, the non-starting must be due to the fact that no spark appears at the plug points. As you have fitted different plugs, it would be necessary to examine the high-tension wire and so adjust the trembler coil that it gives out a high, shrill note, and also check the ignition point of the engine. The spark should take place at the plug when the piston is within 6 mm. from the top of the compression stroke.

J.C.E.—With reference to your trouble with the 2½ h.p. Lewis, as this is one of the best two-strokes on the market and we never have any complaints with four-stroking, we certainly think that your trouble is unique. If, of course, you have fixed ignition, you must expect to get four-stroking at low speeds. When travelling at low speeds it is necessary to retard the ignition practically fully. We presume that the petrol level is not too high, nor that too large a jet is fitted. We should advise you to fit a 26 or 28 jet. The silencer and ports should be free of carbon, and you should not over-lubricate. The best plug to fit is a Lodge two-stroke. We have had no experience with the oil you mention and should advise Castrol or Price's Huile de Luxe or Chemico.

T.G.M.—The speedometer is a magnetic one, and, therefore, cannot be expected to record low speeds. Very few speedometers indeed will register below 5 m.p.h. Roughly, the principle of this speedometer is: A revolving magnet pulls, by means of suitable mechanism, the hand across the face, thus registering the speed. You certainly seem to have carried out every adjustment to get proper firing of the front cylinder. We certainly suspect a slight air leakage. Notwithstanding the fact that you have bound the induction pipe with insulating tape, it would be advisable to go over this again. It sometimes occurs with the J.A.P. engine that the stud on to which the locking ring of the induction pipe screws becomes loose in the cylinder. Have you bound round the control wires with insulating tape where they enter the body of the carburettor?

Will our readers reduce the needless trouble experienced in the working of this bureau by carefully obeying the rules, especially when a route query is made? "I. and A.," "Route," or "Legal" should be distinctly marked on the left-hand corner of the envelope or postcard.



It means that the engine was built by

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LONDON.**

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NOTE.—The Supplement will be found at the end of the book; it comprises the "Motor Cycling Mart," and contains many displayed advertisements in addition to the prepaid line announcements.

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MotorCycling Mart

NOTICES.

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MIDLAND OFFICES—9 & 10, Burlington Chambers, New St., BIRMINGHAM. Telephone No. 2498 Midland. Telegrams—"Presswork, Birmingham." 6, Warwick Row, COVENTRY. Telephone No. 983 Coventry. Telegrams—"Presswork, Coventry."

NORTHERN OFFICES—196, Deansgate, MANCHESTER. Telephone No. 2467 Central. Telegrams—"Presswork, Manchester."

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MOTOR-BICYCLES.

—A.J.S., rare opportunity, 1916, 4hp, and sidecar, just delivered, first cheque £36. Taylor's Garage, Falmouth. 365-654

—A.J.S., 1914, 6hp combination, 3-speed, clutch, kick-starter, perfect condition, accessories, £65; sidecar mount part exchange. Malbrooke, Wolsey Rd., E. Molesey. 364-186

—A.J.S., 1916, 2½hp, 3-speed, Lucas accessories, Stewart speedometer, slightly soiled, £55. Marston 26 and 31 Bridge St., Chester. 364-101

—A.J.S., 1916, 2½hp, 3-speed, latest model, ridden 700 miles only, condition genuinely as new, specification as list, £55. Robinson's Garage, Green St., Cambridge. 364-867

—ALLDAYS Allan, 1915, 2-speed clutch model, with accessories, £36 10s.; and 1915 single-speed, £29 10s.; liberal deferred terms. Lamb's, 151 High St., Walthamstow, and 50 High Rd., Wood Green. 364-860

—ALLDAYS ALLON, delivered end of July last, 2½hp, 2-stroke, 2-speed gear, hand-operating clutch, complete with lamp, Stewart speedometer, horn, and tools, only done 1000 odd miles, equal to new, price £40. McDowell, Danchurst, Milton Rd., Mill Hill, N.W. 364-128

—ALLDAYS ALLON, 1916, 2-speed model, brand new, shop-soiled, at bargain price, £40. Jones, Garage, Broadway, Muswell Hill. 364-909

—ALLDAYS MATCHLESS, 2½hp Villiers engine, 1915 model, splendid condition, £18. 107 Wargrave Ave., Stamford Hill, N. 364-910

—ALLONS, 1916, 2½hp, 2-stroke, 2 speeds, as new, bargain. The Barnes Motor Garage, opposite Red Lion, Barnes, S.W. 364-929

—ARIEL 1914 combination, N.S.U. 2 speeds, Millford sidecar, decompressor, electric horn, lamps, aluminium footboards, Bosch magneto, splendid machine, £38. ■ Chesholm Rd., Stoke Newington. 364-880

—ARIEL, best bargain ever offered. Ariel and nice wicker sidecar, 5hp J.A.P. engine, Bosch ZEV magneto, 50 degree, drip feed lubrication, 2 speeds, spare Whittle belt, all tyres, in excellent condition, the first cheque for £17 secures this exceptional job. Brown, Gloucester Rd., Chelmsford. 364-193

—ARIEL, 3½hp, and sidecar, all accessories, £20, first-rate condition. Marston, 26 and 31 Bridge St., Chester. 364-905

—ARIELS. I can give immediate delivery of 5-6 1917 Ariel, price £98. combination. I can also deliver immediately 1917 3½hp solo or combination. Jones, Garage, Broadway, Muswell Hill. 364-970

—ARIEL 1916 combination, all-black, like new, all lamps, speedometer, etc., guaranteed perfect, £80. Jones, Garage, Broadway, Muswell Hill. 364-971

—ARIELS, 1916, 3½hp, countershaft model, immediate delivery, deferred payments arranged Jones, Garage, Broadway, Muswell Hill. 364-968

—ARNO, 1913, 3½hp, recently enamelled and plated, and new Best and Lloyd lubricator fitted, lamps and horn, tyres and belt good condition, £28. Robins, High St., Wanstead. 364-174

—AUTO-WHEEL, nearly new, £8. Popplewell's, Ipswich. 364-6614

—AUTO-WHEEL, 1914, new Dunlop, bargain, £9 10s. Martride, 119 Mayfair Ave., Ilford, E. 364-6100

—AUTO-WHEEL, in perfect condition, £9. 29 St. Leonard's St., Bow, E. 364-6139

—AUTO-WHEELS, all in splendid condition, 6 in stock, from £3 10s. Geo. Smith, 268 Lavender Hill, Clapham Junction, S.W. Phyne, Battersea 1271. 364-723

—BABY LEVIS, 1916, in perfect order, £22. 29 St. Leonard's St., Bow. 364-6137

—BAT, 1911 15, 6hp, 3-speed C.S. gear, c.b. sidecar, just renovated, a bargain, £52. Ross, ■ High Rd., Lee, S.E. 364-6214

—BRADBURY, 1913, 4hp, 2-speed, free engine, new Kempshall tyres, Middleton coach-built sidecar, accessories and spares, £38. 37 Ramsden Rd., Fulham. 364-671

—BRADBURY, 8hp, Lucas lighting set, footboards, going like new, £15 10s. take good cycle part exchange. E. F. Hunting, Harrow. 364-698

—BRADBURY, 8hp, and coach-built sidecar, clutch, 2-speed N.S.U. gear, just thoroughly overhauled, in good condition, must sell, £24, or offer. Winslow, Melton St., Kettering. 364-6188

—BRADBURY, 1911, 6hp combination, all-enclosed chain-drive, 3-speed, £55, good condition. Ross, 86 High Rd., Lee. 364-6213

—BRADBURY, 4hp, June, 1911, underslung cane sidecar, 1913, 2 speeds, kick-starter, chain-cum-belt Binks, new back tyre, all accessories, in fine condition, £28. Sim, 29 Broomlands, Paisley. 364-6202

—BRADBURY, 1912, 3½hp, N.S.U. gear, lamps, horn, mirror, tools, with 1916½ Phoenix coach-built sidecar, as new, £33. machine just thoroughly overhauled. D. J. Shepherd and Co., Enfield Highway. 364-857

—B.S.A. 1913-14 combination, 3½-4, Bosch, 2 speeds, complete, new condition, £15 10s. Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). 364-6903

—B.S.A., 1916, belt-chain-chain, with 2 lamps, separate generator, mechanical horn, purchased 20th September, ridden under 200 miles, new and unscratched, owner unable ride through illness, quick sale £55, no offers. Captain Cunard, Scaldford Manor, near Northampton (station Brixworth). 365-694

—B.S.A., 1915½, as new, 3½hp, fully equipped, £40. 213 Cassland Rd., South Hackney. 364-6170

—B.S.A., chain-belt model, purchased new September, 1916, only ridden few hundred miles, Lucas lamp sets, front and rear, Lucas horn, spares, in perfect condition, insurance policy, cost £70, will accept £55, owner joining up. Finch, Bath Cottage, Reading Rd., South Farnborough, Hants. 364-6193

—B.S.A., 1912, bought new 1914, 3½, 2-speed clutch, kick start, Dunlop heavy-studded tyres, lamps, horn, in perfect condition throughout, £32, exchanges. Ideal Cycle Co., Thundersley, Essex. 364-6129

—B.S.A., 1914, 4½hp, chain drive, kick start, new coach sidecar, £10. 29 St. Leonard's St., Bow. 364-6133

—B.S.A., late 1913, 3½, clutch model, new tyres, lamps, all accessories, in first-class condition, £26, cheap. 136 Whitehorse Rd., Thornton Heath. 364-6126

—B.S.A., 1913, 3½hp, first quality, 3 speeds, free engine, kick start, chain-driven gearcases, hardly used, in splendid condition, Phoenix sidecar, horn, lamps front and rear, price £43. G.T., ■ Denbigh St., Pimlico, S.W. 364-6139

—B.S.A., 1914½, 3-speed countershaft, all-chain model, kick-start, lamps and horn, £45. Geo. Smith, 268 Lavender Hill, Clapham Junction, S.W. Phone, Battersea 1271. 364-6177

—B.S.A., 1915, 4½, coach-built combination, sidecar enamelled cream, with Bedford cord upholstery, Lucas dynamo lighting set, electric horn and cigar lighter, speedometer, etc., etc., machine only run a few thousand miles and in genuine new condition throughout, combination cost £110 when new, will sacrifice for immediate sale for £72 10s. Wm. Betts, Ld., Motorecycle Dept., 26 Upper Richmond Rd., Putney, S.W. Phone, 1766 Putney. 364-6193

—B.S.A., model II combination, genuine bargain, £50. Leighton's, opposite Wood Green Station. Phone, Palmers Green 471. 364-6226

—B.S.A., 1917, 4½hp, Model K, £84; delivery from stock. D. J. Shepherd and Co., Enfield Highway, N. 364-6264

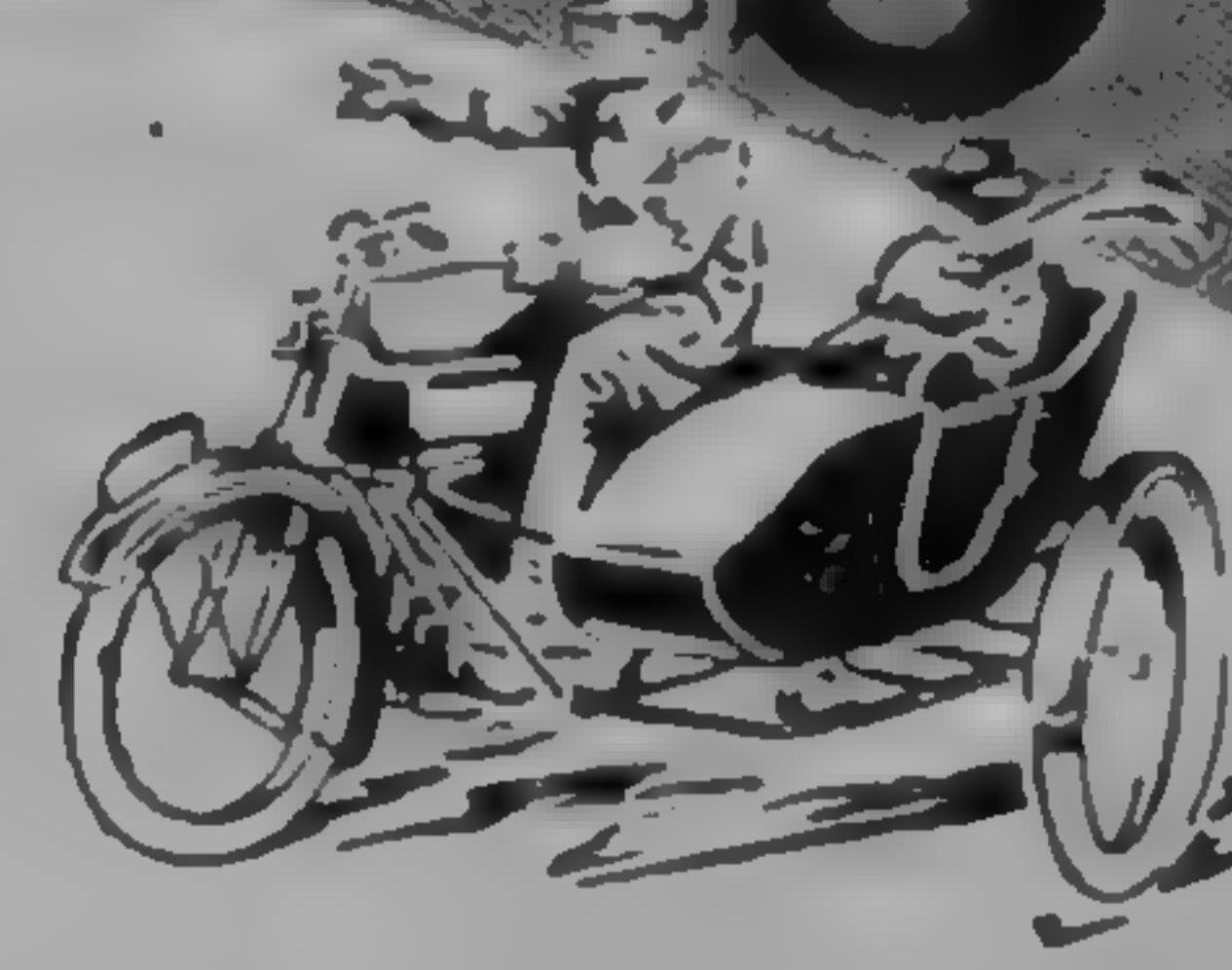
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10083	2½ h.p. 2-speed 2-stroke Allan	11 0
10084	2½ h.p. 2-stroke Calthorpe	£28 17 6
10183	2½ h.p. Calthorpe Jap, single speed	£32 0 6
10195	4½ h.p. countershaft Zenith	£69 0
10227	2½ h.p. single-sp. Calthorpe Jap	£32 0
10367	2½ h.p. 1916 single-speed Levis	32 0
10488	2½ h.p. 1916 2-sp. 2-str. Calthorpe	32 11
10497	2½ h.p. 1916 2-sp. Calthorpe Jap	37 16
10505	2½ h.p. 1916 New Imperial Jap	11 0
10578	2½ h.p. 1916 2-sp. Calthorpe Jap	37 16
10579	2½ h.p. 1916 2-sp. Calthorpe Jap	37 16
10618	2½ h.p. 1916 2-speed, kick-start, New Imperial	44 8
10626	4½ h.p. 1916 2-sp. model K B.S.A.	64 0
10635	4½ h.p. 1916 3-sp. model K B.S.A.	64 0
10637	4½ h.p. 1916 2-speed Bat	63 5
10652	4½ h.p. 1916 2-sp. Calthorpe combination	70 7
10655	2½ h.p. 1916 2-speed Enfield	44 2
10670	4½ h.p. 1916 3-sp. model K B.S.A.	64 0
10672	3½ h.p. 1916 Royal Enfield	57 15
10677	2½ h.p. 1916 sin. sp. Popular Levis	32 0
10680	4½ h.p. 1916 3-sp. model K B.S.A.	64 0
10685	4½ h.p. 1916 3-sp. model K B.S.A.	64 0
10692	6 h.p. 1916 2-sp. Enfield comb.	99 15
10693	2½ h.p. 1916 2-sp. NEW IMPERIAL	38 0
10697	4½ h.p. 1916 3-sp. model K B.S.A.	64 0
10702	4½ h.p. 1916 3-sp. model K B.S.A.	64 0
10703	2½ h.p. 1916 2-sp. Enfield comb.	94 10
10710	4½ h.p. 1916 3-sp. model K B.S.A.	64 0
10732	2½ h.p. 1916 2-sp. Royal Enfield combination	94 10
10741	4½ h.p. 1916 3-sp. model H B.S.A.	66 0
10742	2½ h.p. 1916 2-sp. Royal Enfield	57 15
10743	3 h.p. 1916 2-sp. Royal Enfield	57 15

NEW 1915 MACHINES.

9861	2½ h.p. 2-sp. Wolf, 2-stroke	£28 0 0
9902	2½ h.p. 2-speed Wolf-Jap	11 10 0
9917	2½ h.p. 2-stroke Wolf	11 18 6

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No.	Model	£ s. d.
4047	1912 Montgomery caster-wheel sidecar, No. 5	4 10
6263	1913 Gondola sidecar	7 10
7751	Williamson cab	£20 0 0
7941	Coach-built sidecar	2 0 0
8923	Bradbury wicker tradesman's carrier, new	12 0 0
9189	Coach built sidecar	2 10 0
9607	Canoelet coach-bit. sidecar	11 0 0
9855	Canoelet sidecar	14 0 6
9955	Canoelet C4, with apron	14 8 0
10284	Model B3, Canoelet ch-bit.	14 8 9
10525	1916 Empire sidecar	13 0 0
10526	1916 Canoelet sidecar	9 9 0
10527	1916 Canoelet sidecar	13 1 0
10528	Godiva sidecar	1 0 0
10555	Canoelet coach-built sidecar	13 0 0
10558	Canoelet sidecar	14 17 0
10559	Minor Canoelet sidecar	9 19 6
10560	Minor Canoelet sidecar	9 19 6
10576	Rudge sidecar, new	10 18 0
10549	Canoelet Minor sidecar	9 19 6
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10485	4 h.p. single-speed Bradbury	23 10
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10521	2½ h.p. single sp. Motosacoche	6 10
10529	2½ h.p. 1918 2-sp. Douglas	—
10538	3½ h.p. 1912 3-speed Quadrant	27 10
10540	4½ h.p. 1914 8-sp. James and s'car	50 0
10561	7-9 h.p. 1914 2-speed Indian	35 0
10563	2½ h.p. 1914 twin N.U.T.	35 0
10567	2½ h.p. 1915 2-speed 2-stroke Calthorpe	25 0
10579	2½ h.p. 1915 2-speed Dalthorpe	31 10
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10588	3½ h.p. 1918 Rudge-Multi and s.c.	45 0
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10648	5 h.p. 1912 single speed Indian	20 0
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— **HARLEY-DAVIDSON**, 1915, 7 1/2, 3 speeds, clutch, Millford Empress sidecar, P. and H. lamps and accessories, perfect condition, very fast (do 53 m.p.h. with sidecar), nearest offer £60, will exchange for 1914 or 1915 Douglas and cash after 5 p.m. Tel., 1219 East. J. Knight, ■ Addington Rd., Barking Rd. 361-c160

— **HARLEY-DAVIDSON**, 1916, 7 1/2hp, 3 speeds, model 16F, with special Montgomery sidecar to match, used only for a few miles, £90. Elce and Co., 15-16 Bishopsgate Ave., Cannon St., E.C. 361-853

— **HARLEY-DAVIDSON** combination, 1915, electric equipment, as new, £70. Percy and Co., 337 Euston Rd., London. 361-948

— **HENDERSON**, 1915, 4-cylinder, 10hp, short wheelbase, 2-speed, clutch, mileage 900, perfect, £60, or exchange lower power. Pigot Disney, E. Melesy, Surrey. 364-855

— **HUMBER**, 3 1/2, 3-speed, 1915, brand new, £25. The Exeter Motor Cycle Co., Ltd., Bath Rd., Exeter and Tiverton Rd., Plymouth. 364-793

— **HUMBER**, 1911, 3 1/2, 2 speeds, clutch, good condition, £12 10s. Nesma Co., 129b King's Rd., Chelsea. 364-c64

— **HUMBER**, 1911, 3 1/2, 2 speeds, clutch, exceptional engine and m.p.g., £18 10s. 107 Tally Rd., Saltley, Birmingham. 364-c166

— **HUMBER**, 2 1/2hp, 3 speeds and clutch, lamp and horn, good condition, fast, sporting bike, £25. P. J. Evans, John Bright St., Birmingham. 364-812

— **INDIAN**, 1915, 3 1/2hp, 3-speed, £16; also 7 1/2 Powerplus model G, 6 weeks old, all accessories, £70 cash. Popplewell's, Ipswich. 364-b610

— **INDIAN**, late 1915, 3 speeds, clutch, run 2000 miles, original Dunlops, excellent condition throughout, very economical, £18, or exchange for 1913 Douglas and cash. S. H. Ash Rd., Stratford. 364-b901

— **INDIAN**, late 1915, 7 1/2hp, T.T., clutch, as good as new, sell £10, or exchange lightweight. V. Bull, Waterhouse, Chelms. 364-c83

— **INDIAN**, 1916, 5 1/2hp, 3 speeds, Watsonian sidecar, all accessories, not ridden 1000 miles, nearest offer £150 for immediate cash. Barbour, 13 Alexander Rd., Devonport. 364-c69

— **INDIAN**, 1915, 5hp, 3-speed, nice condition, with lamps, £46. Ross, 86 High Rd., Lee. 364-c208

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— **INDIAN**, 1915, 5hp, 3 speeds, and sporting sidecar, excellent condition, £52. Clayton, Melbourne Rd., Wallington, Surrey. 364-c224

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— **IVY PRECISION**, with sidecar, 1913, 4½-hp Sturmey-Archer 3-speed, overhauled, £26. Stares, Tulsemers Rd., West Norwood. 364-c42

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— **LEVIS** Popular models in stock. £32; exchanges. D. J. Shepherd and Co., Enfield Highway, N. 364-862

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— **MATCHLESS**, 1912, 6-8hp, and coach-built torpedo sidecar, single-speed, fast, sporty turnout. £28. Wm. Betts, Ltd., 96 Upper Richmond Rd., Putney. Phone 1766 Putney. 364-956

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— **MATCHLESS**, 1914, 7hp model, 8B, in perfect order, £55; deferred terms if desired. Lamb's, 151 High St., Walthamstow; also at 50 High Rd., Wood Green. 364-876

— **MATCHLESS-J.A.P.**, 6hp, 1913, 2-speed, coach-built s.c., new foot brake lever, new gear levers, new tyre on back wheel, good condition. J. Bull, 423 East India Dock Rd., Poplar. 364-c63

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— **NEW IMPERIAL-J.A.P.**, 1915, 2½hp, 2-speed, in excellent condition, £29. Wm. Betts, Ltd., 96 Upper Richmond Rd., Putney, S.W. Phone, 1768 Putney and 1698 Putney. 364-954

— **NORTON**, 1916, big 4, and sidecar, brand new, actually in stock. Percy and Co., 337 Euston Rd., London. 364-947

— **NORTON**, 1916½, racer, Phillipson, new Sen-spray, 80 m.p.h., speedometer, unused P.H. head-lamp, Spartan horn, new Pedley belt, knee-grips, roughriders, racing plug, 70 m.p.h. guaranteed, tanks full, 57 guineas. Bramwell, Gatehouse, Belvedere Ave., Wimbledon. 364-c125

— **NORTON**, 1916, "Big Four" combination de luxe, hood, screen, 3 lamps, speedometer, Gloria-phone, and spares, just overhauled, mileage 1001, £75. Waite, Park Ave., Northampton. 364-c223

— **O.K.**, 1915, 2½hp, 2 speeds, complete with all accessories, £25. The Barnes Motor Garage, opposite Red Lion, Barnes, S.W. 364-930

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— **PEUGEOT**, 5-6hp, 3 speeds, 1915, Bosch, new Dunlop tyre, etc., photo. stamp, £16. 23 Martell Rd., West Dulwich. 364-c162

— **PHELON** and **MOORE**, 2 speeds, new tyres, perfect condition, all accessories, £40. Popplewell's, Ipswich. 364-b613

— **PRECISION**, 1913, 2½hp, new Dunlop tyres, Dunlop belt, 3 toolbags and kit, very fast, just thoroughly overhauled, £17, bargain. D. J. Shepherd and Co., Enfield Highway, N. 364-859

— **PREMIER**, 1914, 3½hp, 2 speeds, coach-built sidecar, £45, cash or easy terms. R. E. Jones (Garages), Ltd., Swansea. 364-c171

— **PREMIER**, 1915, 2½hp, 110 gallons, lamps, horn and accessories, not done 1000 miles, £25 or nearest offer. A. E. Jones, Onibury, Salop. 364-c72

— **PREMIER**, 1915, 3½hp, 3-speed countershaft, kick, £36, any trial given, seen afternoons 3 to 5 p.m. Boxall, 26 Adam and Eve Mews, High St., Kensington. 364-c146

— **PREMIER**, 1913, 2½hp, in one order, £17 10s. Jones's Garage, Broadway, Muswell Hill. 364-962

— **PREMIER**, 1913, 2-speed, and c.b. sidecar, all lamps, etc., £30. Easy payments arranged. Jones, Garage, Broadway, Muswell Hill. 364-961

— **QUADRANT**, 1916, 4hp, B.S.A. 3-speed gear, Canoelet sidecar, screw and grid, all-black disc wheels, numerous fittings and accessories, £65. Capt. Tickler, 15th Yorks. Regt., Rugeley, Staffs. 364-c50

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— **REVERE**, 1916, 2-stroke, 2-speed, drip-feed lubrication, Dunlop studied tyres, with lamps and horn, practically as new, cost £45, mileage about 160, bargain, £38; exchanges. Ideal Cycle Co., Thundersley, Essex. 364-c221

— **REX**, 1913, 6-8, twin, and c.b. sidecar, 2-speed, etc., in excellent condition, lamps, horn, spares, £35, bargain. Johnson, 2 Hazel St., Warrington. 364-c86

— **REX**, 1912 coach combination, 6hp, twin, Bosch, 2 speeds, £26 10s. Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). 364-d911

— **REX**, 1912-13, 3½hp, 2 speeds, free engine, clutch, Bosch magneto, B. and B. carburetter, new belt, tyre, lamps and saddle, tools, £23 10s. Dewhurst, Forton Barracks, Gosport. 361-c58

— **REX**, 3½hp, Bosch magneto, low frame, horn, lamps, excellent running order, £11 10s. 40 Burntwood Lane, Tooting. 364-c161

— **REX**, 1911, 8hp, twin, 3-speed combination, with 2-seater sidecar, complete with accessories, in first-rate order, £15. Tuke and Bell, Ltd., Motor Engineering Dept., Carlton Engineering Works, 599 High Rd., Tottenham, N. 361-943

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— **ROVER**, T.T., 1916, Phillipson, Watford, Lucas lamp, grips, mechanical horn, £40 lowest; owner going abroad. Clegg, Castle, Monmouth. 364-c52

— **ROVER**, 1917, fast, 9½, T.T., now from works, £55; take big twin part payment. Christie Bros., St. Andrews. 361-c99

— **ROVER**, 1911, wicker sidecar, Sturmey-Archer 3-speed gear, tyres excellent, machine is in first-class condition throughout, has not been ridden for a year, owner at the front, price £34. Gardner, Ironmonger, Egham. 364-c140

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— ROVER, 1913, 3½hp, semi-T.T. racer, all accessories, £32 10s.; also a 1908 approx. with Helleman's dry cell, Grade gear, new tyres, £9 10s. Lamb's, 151 High St., Walthamstow; and 50 High Rd., Wood Green. 364-886

— ROVER, 1914, 3-speed, 1915½, Kerry coach-built sidecar, lamps, horns, and spares, like new, cost £75, accept £40. 4 Stanley Rd., Lymington, Hants. 364-c116

— ROVER, 1912, clutch, Philipson pulley, r.c.b. sidecar, splendid running order, £26. Engleham, Lechlham, Staines. 364-c106

— ROVER, 1916, T.T. model, Philipson pulley, shop-soiled only, £52 10s. Marston, 26 and II Bridge St., Chester. 364-811

— ROVERS. P. J. Evans, Birmingham, agent. Immediate delivery all models. Combinations, Standard and sporting, solo, countershaft, 3-speed, semi-T.T., with Philipson pulley, also racing fixed engine model, prices from £51 10s. 87-91 John Bright St. 364-811

— ROVER 1912 combination, brand new, actually in stock. Perry and Co., 337 Euston Rd., London. 364-948

— ROYAL RUBY, in good condition, all accessories, £18. Popplewell's, Ipswich. 364-b615

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— RUDGE, 1912, 3½hp, free engine, good condition, £25. R. E. Jones (Garages), Ltd., Swansea. 222-381

— RUDGE, 1912, 3½hp, free engine, good condition, engine recently overhauled, wants new back cover, rest excellent, £17. A. G. Hall, R.E. Camp, Sutton Veny, Wilts. 364-c74

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— RUDGE-MULTI, 1914, 3½hp, in fine order with accessories, £34 10s.; deferred payments if desired. Lamb's, 151 High St., Walthamstow; and 50 High Rd., Wood Green. 364-878

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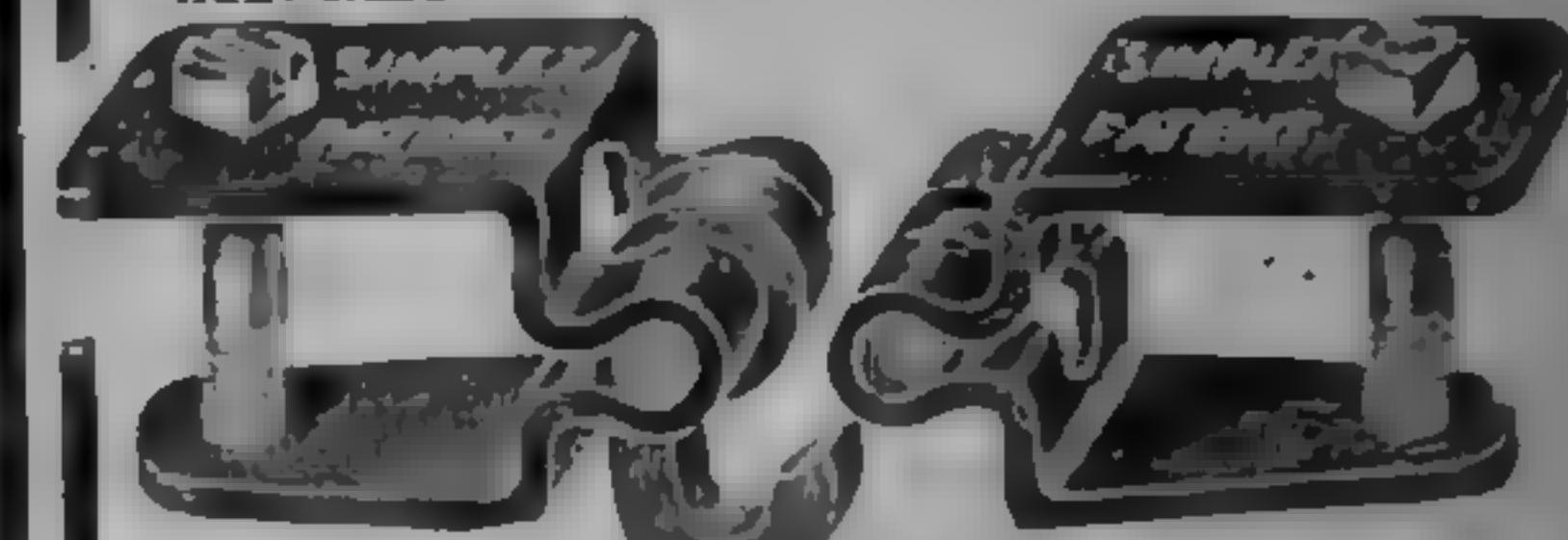
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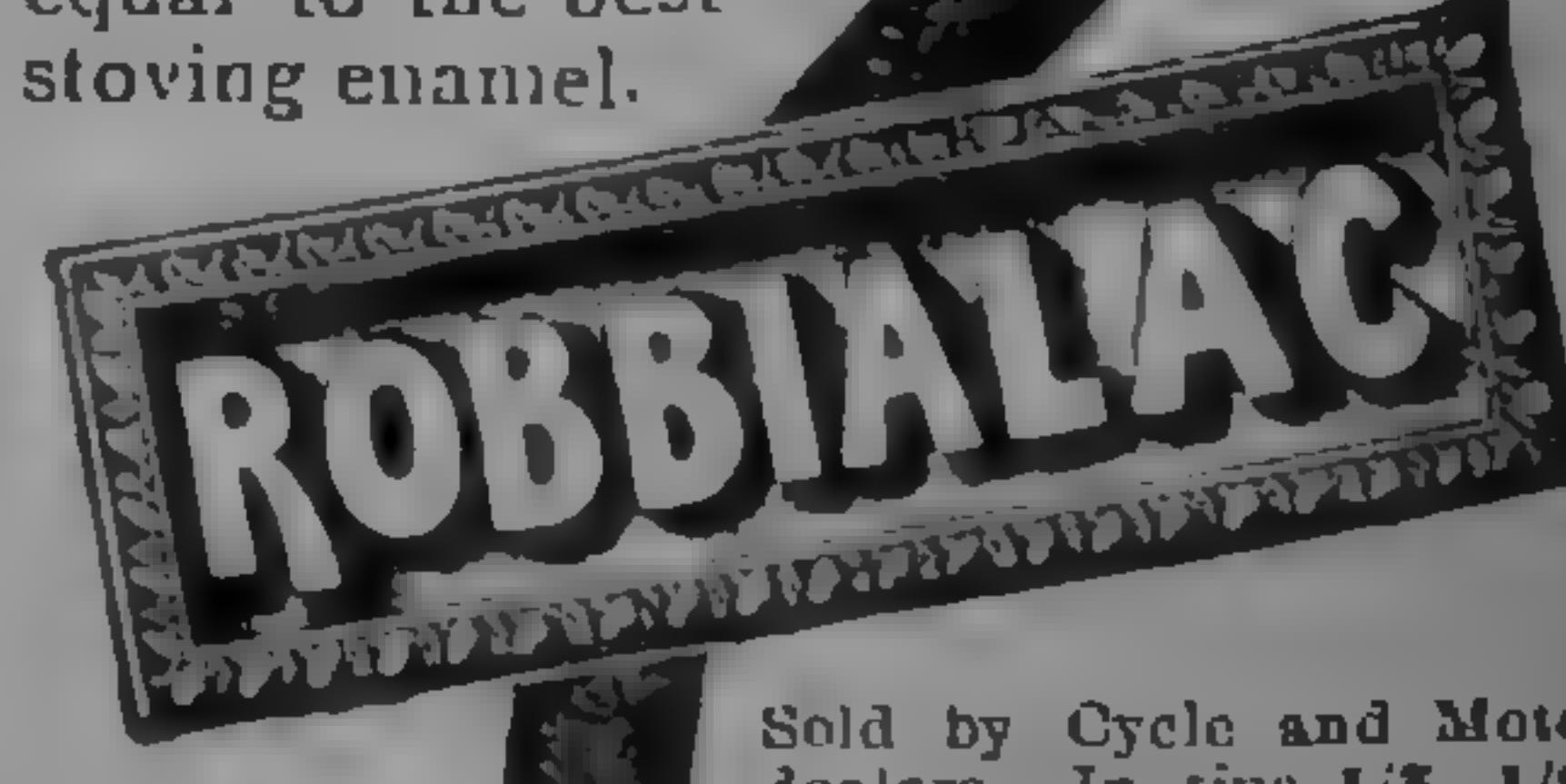
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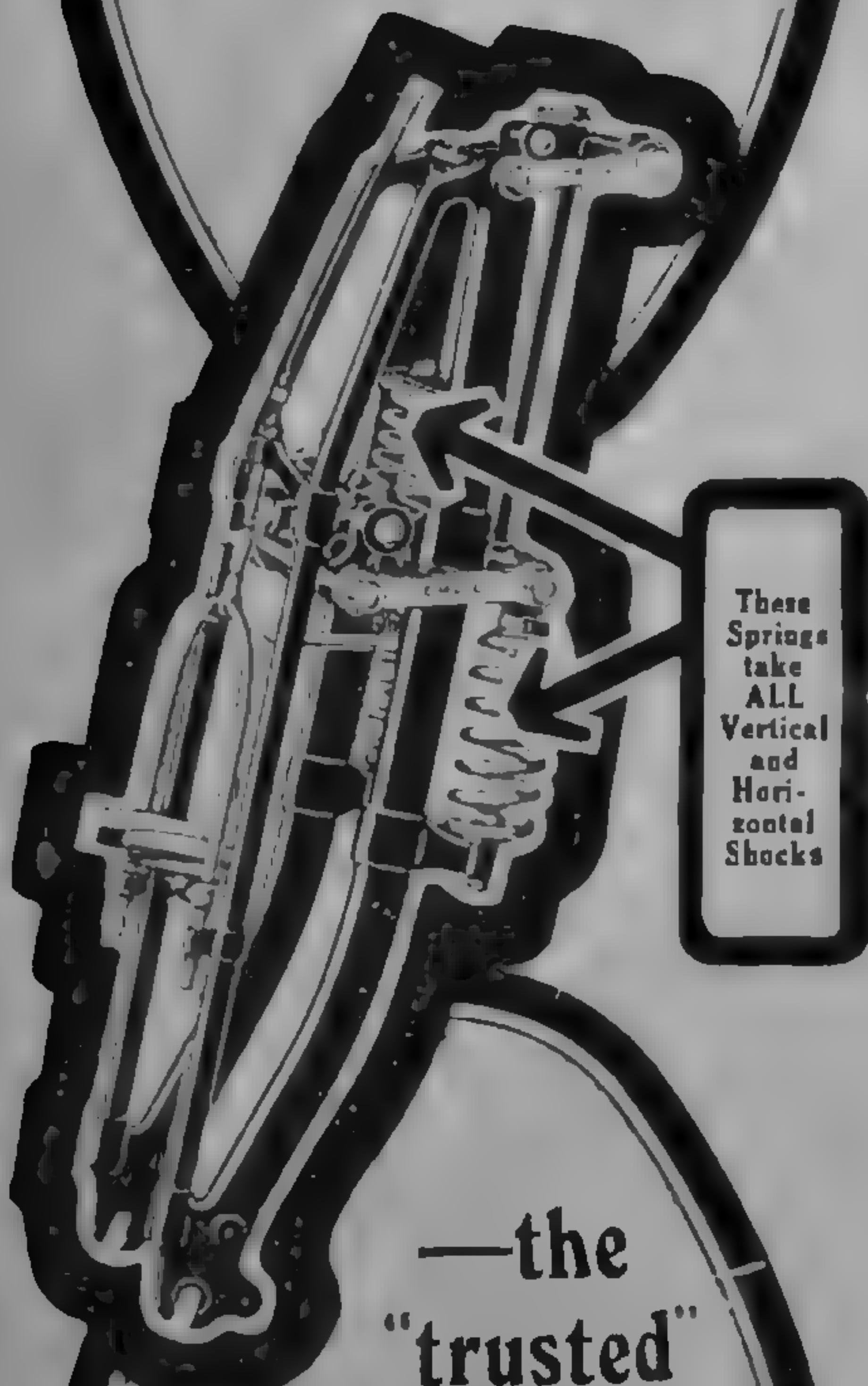
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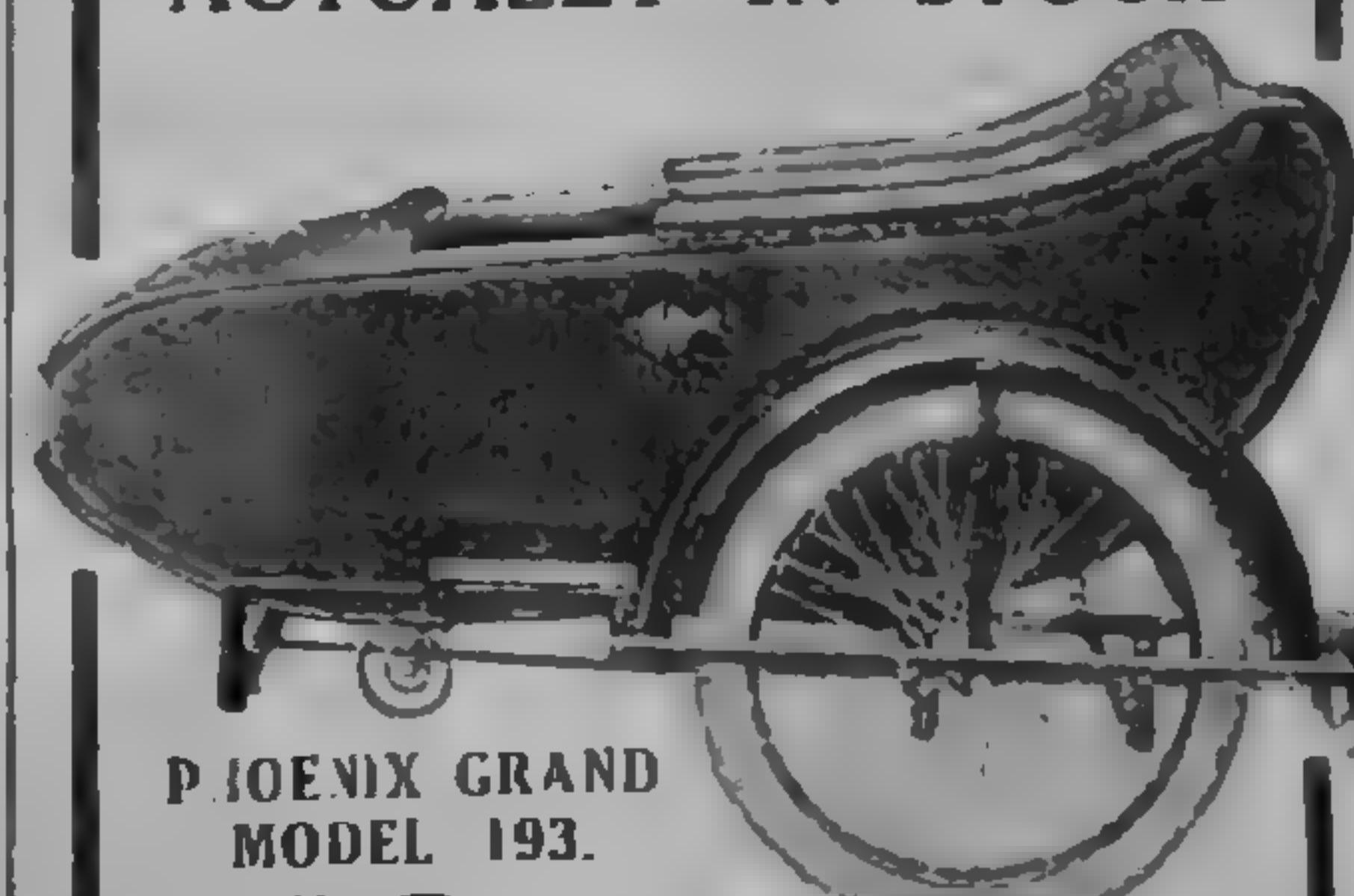
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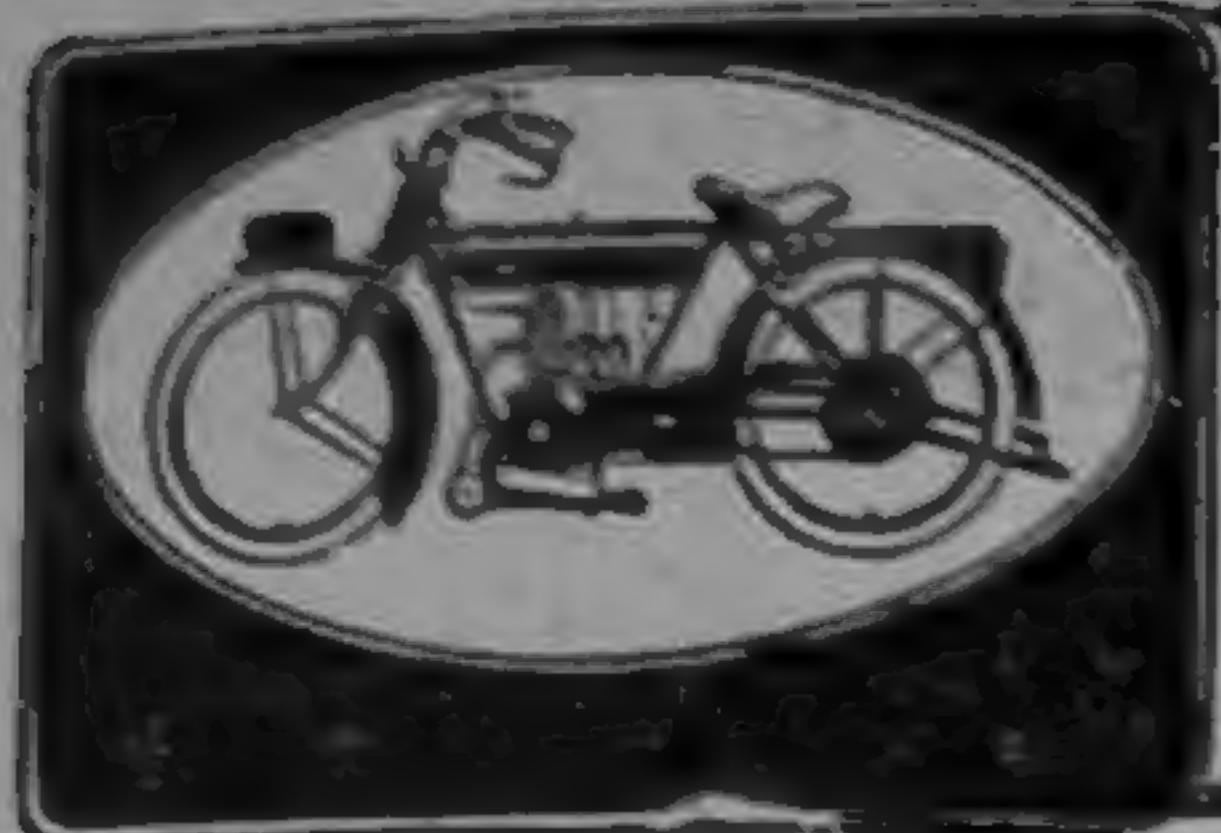
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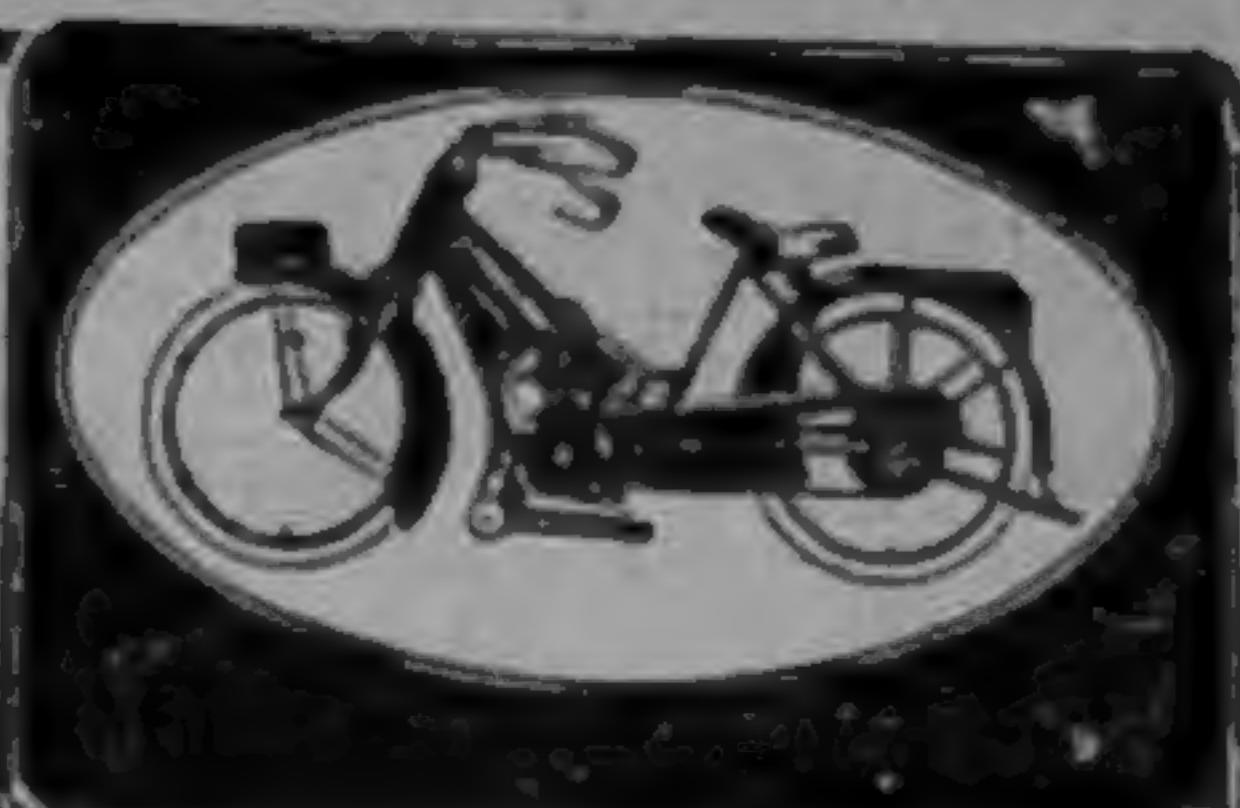
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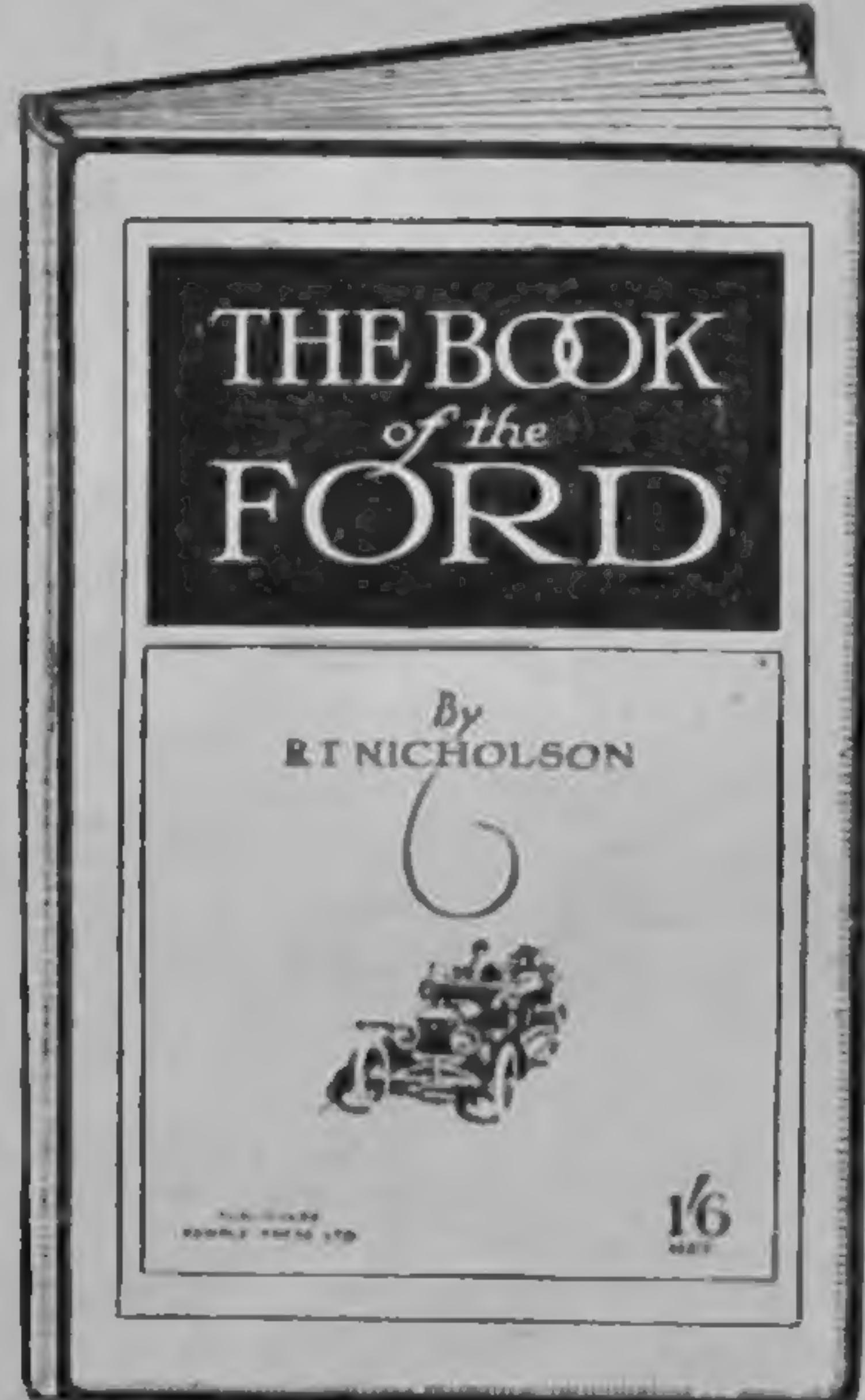
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